JVC

SERVICE MANUAL

VIDEO CASSETTE RECORDER

HR-S5980AH, HR-S5980AJ

G-CODE™ / SHOWVIEW™
Hi-Fi S-VHS 525/625
Super VHS ET

SPECIFICATIONS *(The specifications shown pertain specifically to the model HR-S5980AH.)*

GENERAL

Power requirement	
Rating	: AC 110 V – 240 V~, 50 Hz/60 Hz
Operating	: AC 90 V – 260 V~, 50 Hz/60 Hz
Power consumption	: 20 W
Temperature	
Operating	: 5°C to 40°C
Storage	: –20°C to 60°C
Operating position	: Horizontal only
Dimensions (W x H x D)	: 400 mm x 94 mm x 278 mm
Weight	: 3.4 kg
Format	: S-VHS/VHS standard
Maximum recording time	
(SP)	: 240 min. with E-240 video cassette (PAL/MESECAM)
	: 160 min. with T-160 video cassette (NTSC)
(LP)	: 480 min. with E-240 video cassette (PAL/MESECAM)
(EP)	: 720 min. with E-240 video cassette (PAL/MESECAM)
	: 480 min. with T-160 video cassette (NTSC)

VIDEO/AUDIO

Signal system	: PAL-type colour signal and CCIR monochrome signal, 625 lines/ 50 fields
	: NTSC colour and EIA monochrome signals, 525 lines/60 fields
Recording system	: DA-4 (Double Azimuth) head helical scan system
Signal-to-noise ratio	: 45 dB
Horizontal resolution	
S-VHS	: 400 lines
VHS PAL/MESECAM	: 250 lines
VHS NTSC	: 220 lines
Frequency range	
Normal audio	: 70 Hz to 10,000 Hz
Hi-Fi audio	: 20 Hz to 20,000 Hz
Input/Output	: RCA connectors: IN x 2, OUT x 1 S-Video connectors: IN x 2, OUT x 1

TUNER/TIMER

TV channel storage capacity	: 99 positions (+AUX position)
Tuning system	: Frequency synthesized tuner
Channel coverage	
VHF	: (Low) 42 MHz – 175 MHz/ (High) 175 MHz – 470 MHz
UHF	: 470 MHz – 870 MHz
Aerial output	: UHF channels (Adjustable E28 – E60)
Memory backup time	: Approx. 6 months Estimated figure based on supplied fresh battery; actual performance may differ.

ACCESSORIES

Provided accessories	: RF cable, S-Video cable, Infrared remote control unit, "R6/UM-3" battery x 2, Lithium battery – CR2025 –

Specifications shown are for SP mode unless otherwise specified.
Design and specifications subject to change without notice.

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No.82981
2003/07

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The following table indicates main different points between models HR-S5980AH and HR-S5980AJ.

ITEM \ MODEL	HR-S5980AH	HR-S5980AJ
POWER PLUG	HK3PIN(CLS II)	UL, CSA

Notes: Mark ◄— is same as left.

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

●Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded ( ) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape 3) Spacers 5) Barrier
   2) PVC tubing 4) Insulation sheets for transistors

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

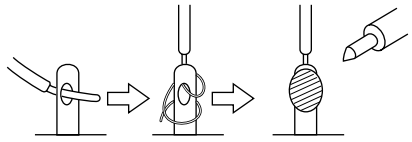


Fig.1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10-15 kg of force in any direction will not loosen it.

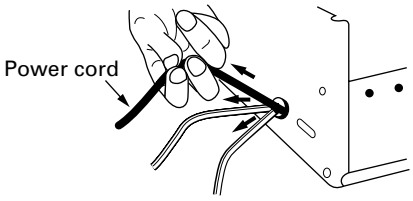


Fig.2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.

    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

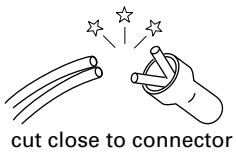


Fig.3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

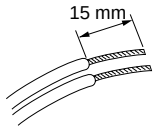


Fig.4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

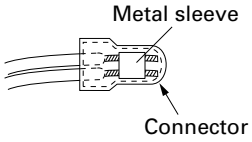


Fig.5

(4) As shown in Fig.6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

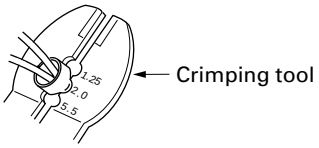


Fig.6

(5) Check the four points noted in Fig.7.

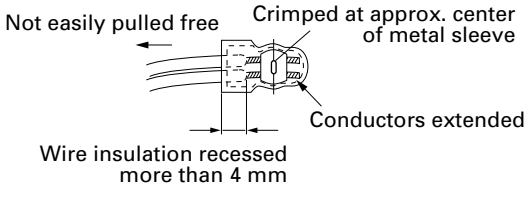

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig.7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Insulation resistance test

Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. Dielectric strength test

Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. Clearance distance

When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

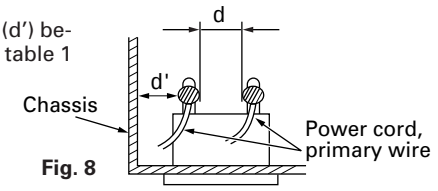


Fig. 8

4. Leakage current test

Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

Measuring Method : (Power ON)

Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

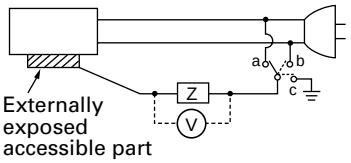


Fig. 9

5. Grounding (Class Ⅰ model only)

Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).

Measuring Method:

Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

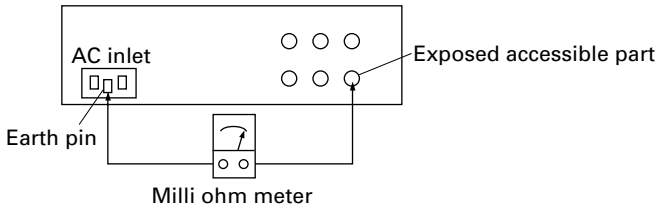


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 miute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	1 MΩ ≦ R ≦ 12 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ/500 V DC	AC 3 kV 1 minute (Class Ⅱ) AC 1.5 kV 1 minute (Class Ⅰ)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	0.15 µF, 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

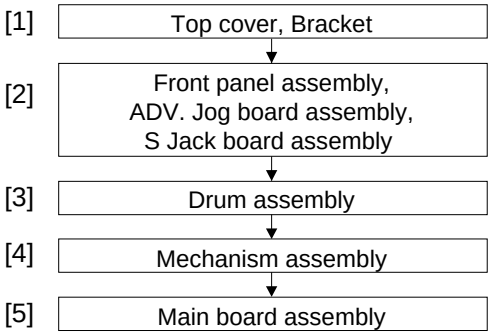
Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

SECTION 1
DISASSEMBLY

1.1 Disassembly flow chart

This flowchart lists the disassembling steps for the cabinet parts and P.C. boards in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend, route and dress the flat cables as they were originally laid.



1.2 How to read the disassembly and assembly

<Example>

Step/ Loc No.	Part Name	Fig. No.	Point	Note
[1]	Top cover, Bracket	D1	4(S1a),(S1b),3(L1a), 2(SD1a),(P1a),(W1a), CN1(WR1a), 2(S1c)	<Note 1a>

(1) (2) (3) (4) (5)

(1) Order of steps in Procedure
When reassembling, perform the step(s) in the reverse order. These numbers are also used as the identification (location) No. of parts Figures.
(2) Part name to be removed or installed.
(3) Fig. No. showing procedure or part location.
(4) Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped or unsoldered.
P= Spring, W= Washer, S= Screw, L= Locking tab, SD= Solder, CN**(WR**)= Remove the wire (WR**) from the connector (CN**).

Note:

- ***The bracketed ( ) WR of the connector symbol are assigned nos. in priority order and do not correspond to those on the spare parts list.***

(5) Adjustment information for installation

1.3 Disassembly/assembly method

Step/ Loc No.	Part Name	Fig. No.	Point	Note
[1]	Top cover, Bracket	D1	4(S1a), (S1b) 2(S1c)	
[2]	Front panel assembly ADV. Jog board assembly S Jack board assembly	D2	CN7001(WR2a), CN916(WR2b), 4(L2a), 3(L2b) 2(S2a) 2(S2b)	<Note 2a> <Note 2b> <Note 2c>
[3]	Drum assembly (Inertia plate) (Roller arm assy) (Cleaner assy)	D3	CON1(WR3a), CN1(WR3b), (S3a), (S3b), (S3c) 4(L3a) (P3), (L3b) (L3c)	<Note 2c>
[4]	Mechanism assembly	D4	CN2001(WR4a), (S4a),(S4b), (S4c), (S4d)	<Note 2c> <Note 4a>
[5]	Main board assembly	D5	7(L5a), (S5a), 3(S5b)	

<Note 2a>

- When reattaching the Front panel assembly, make sure that the door opener “a” of the Cassette holder assembly is lowered in position prior to the reinstallation.

<Note 2b>

- When reattaching the Front panel assembly, pay careful attention to the switch lever not to make it touch the switch knob “b” of the Main board assembly from the side.

<Note 2c>

- Be careful not to damage the connector and wire etc. during connection and disconnection.
  When connecting the wire to the connector, be careful with the wire direction.

<Note 4a>

- When it is required to remove the screws (S4a to S4b) retaining the Mechanism assembly, please refer to the “Procedures for Lowering the Cassette holder assembly”(See on page 1-2).
- When reattaching the Mechanism assembly to the Main board assembly, take care not to damage the sensors and switch on the Main board assembly.
- When removing the Mechanism assembly only, unhook the two spacers connecting it with the Main board assembly with pliers from the back side of the Main board assembly first, and then remove the Mechanism assembly.
- The wire (WR4a) has excess length that may be loose, as it is quite long. After inserting the wire and connectors, the loose portion of the wire should be taken up and accommodated between the A/C head base and the main deck.

Procedures for Lowering the Cassette holder assembly

As the mechanism of this unit is integrated with the Housing assembly, the holder must be lowered and the two screws unscrewed when removing the Mechanism assembly.

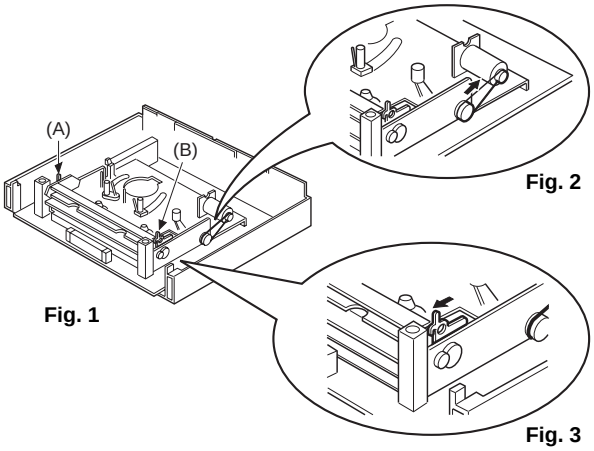


Fig. 1

Fig. 2

Fig. 3

Turn the loading motor pulley in the direction as indicated by Fig.2. As both (A) and (B) levers are lodged twice, push the levers in the direction as indicated by Fig.3 to release them. When pushing the levers, do it in the order of (A), (B), (B), (A). When the holder has been lowered, turn the pulley until the cassette holder is securely in place without allowing any up/down movement.

Procedures for Lowering the Cassette holder assembly

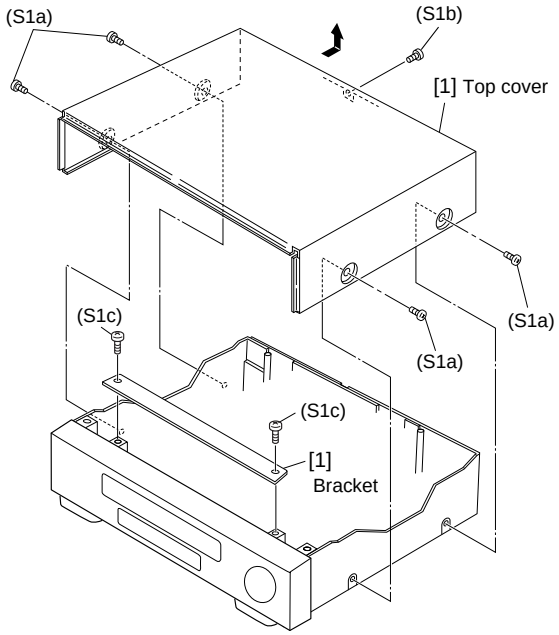


Fig. D1

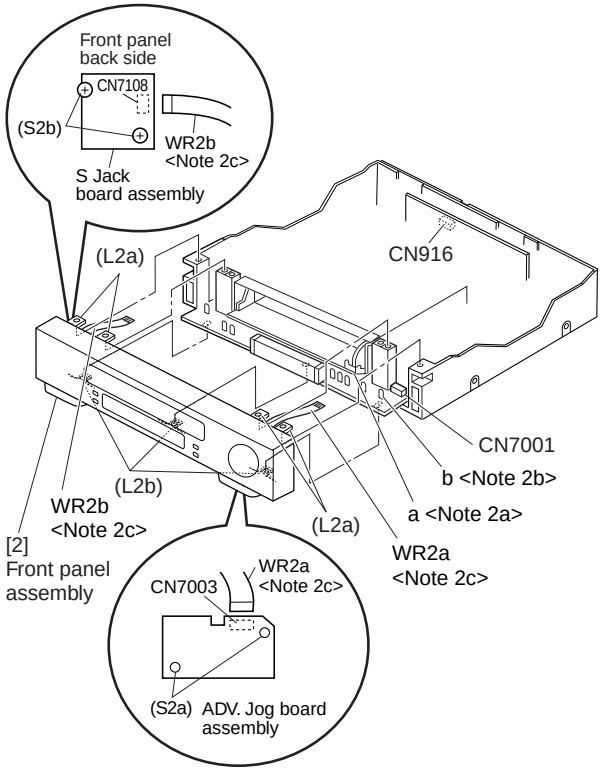


Fig. D2

Note: When installing the Drum assembly, secure the screws (S3a to S3c) in the order of a, b, c.

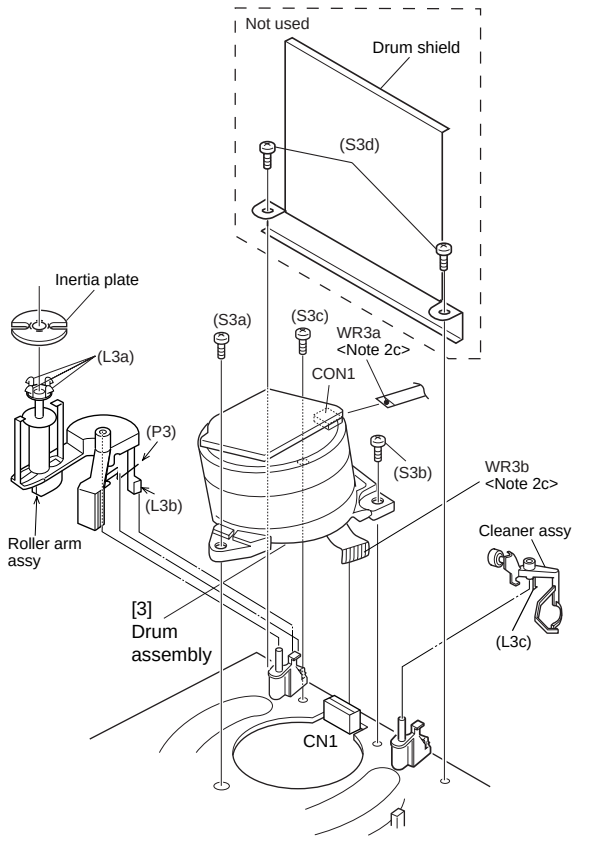


Fig. D3

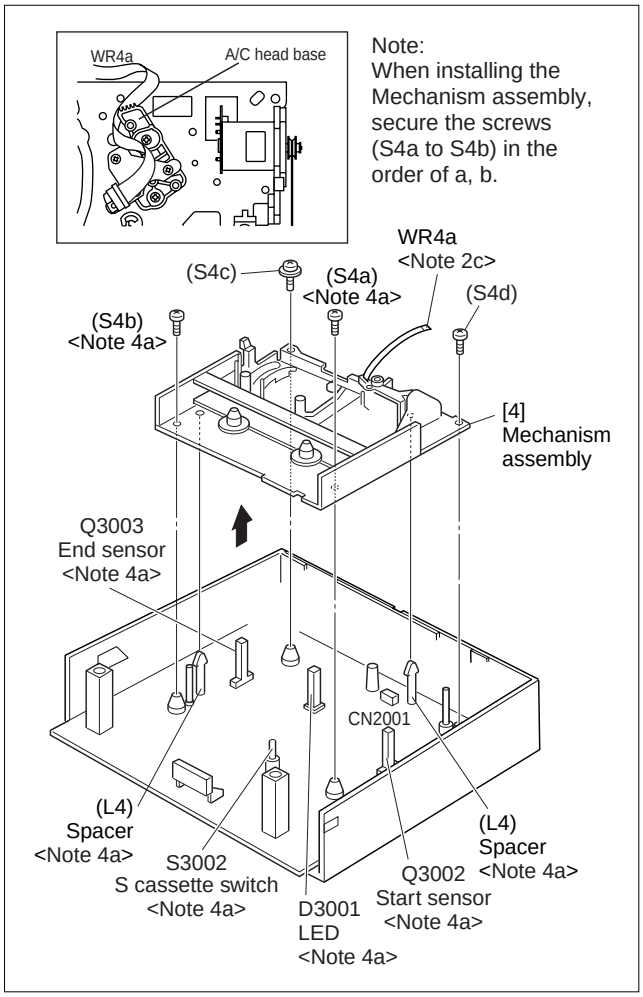

WR4a
A/C head base
Note:
When installing the Mechanism assembly, secure the screws (S4a to S4b) in the order of a, b.
WR4a
<Note 2c>
(S4c)
(S4a)
<Note 4a>
(S4d)
(S4b)
<Note 4a>
[4]
Mechanism
assembly
Q3003
End sensor
<Note 4a>
CN2001
(L4)
Spacer
<Note 4a>
S3002
S cassette switch
<Note 4a>
D3001
LED
<Note 4a>
Q3002
Start sensor
<Note 4a>
(L4)
Spacer
<Note 4a>

Fig. D4

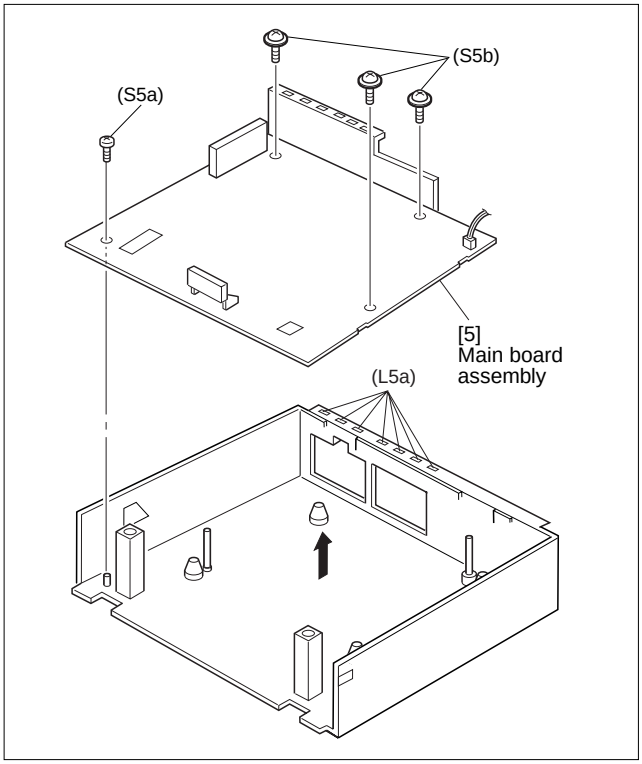

(S5b)
(S5a)
[5]
Main board
assembly
(L5a)

Fig. D5

1.4 Service position

This unit has been designed so that the Mechanism and Main board assemblies can be removed together from the chassis assembly. Before diagnosing or servicing the circuit boards, take out the major parts from the chassis assembly.

1.4.1 How to set the "Service position"

(1) Refer to the disassembly procedure and perform the disassembly of the major parts before removing the Drum assembly.
(2) Lower the cassette holder to prepare for the removal of the Mechanism assembly screws. (Refer to the "Procedures for lowering the Cassette holder assembly" of 1.3 Disassembly/assembly method.)
(3) Remove the combined Mechanism and Main board assemblies.
(4) If any other major parts are used, remove them also.
(5) Connect the wires and connectors of the major parts that have been removed in step (1) to (4). (Refer to Fig.1-4-1a.)
(6) Place the combined Mechanism, Main board and other board assemblies upside down.
(7) Insert the power cord plug into the power outlet and then proceed with the diagnostics and servicing of the board assembly.

Notes:

- ***Before inserting the power cord plug into the power outlet, make sure that none of the electrical parts are able to short-circuit between the workbench and the board assembly.***
- ***For the disassembly procedure of the major parts and details of the precautions to be taken, see "1.3 Disassembly/assembly method".***
- ***If there are wire connections from the Main board and Mechanism assemblies to the other major parts, be sure to remove them (including wires connected to the major parts) first before performing step (2).***
- ***When carrying out diagnosis and repair of the Main board assembly in the "Service position", be sure to ground both the Main board and Mechanism assemblies. If they are improperly grounded, there may be noise on the playback picture or FDP counter display may move even when the mechanism is kept in an inoperative status.***
- ***In order to diagnose the playback or recording of the cassette tape, set the Mechanism assembly to the required mode before placing it upside down. If the mechanism mode is changed (including ejection) while it is in an upside down position the tape inside may be damaged.***

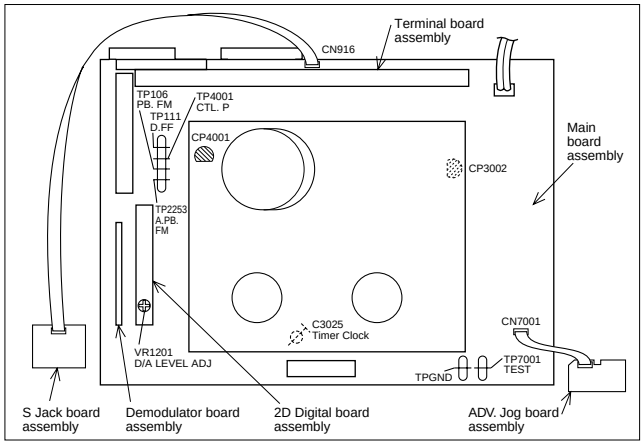


Fig. 1-4-1a

1.5 Mechanism service mode

This model has a unique function to enter the mechanism into every operation mode without loading of any cassette tape. This function is called the "Mechanism service mode".

1.5.1 How to set the "Mechanism service mode"

(1) Unplug the power cord plug from the power outlet.
(2) Connect TPGND and TP7001(TEST) on the board assembly with a jump wire. (Refer to Fig.1-4-1a.)
(3) Insert the power cord plug into the power outlet.
(4) With lock levers (A) (B) on the left and right of the Cassette holder assembly pulled toward the front, slide the holder in the same direction as the cassette insertion direction. (For the positions of lock levers (A) (B), refer to the "Procedures for lowering the Cassette holder assembly" of 1.3 Disassembly/assembly method.)
(5) The cassette holder lowers and, when the loading has completed, the mechanism enters the desired mode.

1.6 Jig RCU mode

This unit uses the following two modes for receiving remote control codes.

1) User RCU mode : Ordinary mode for use by the user.
2) Jig RCU mode : Mode for use in production and servicing.

When using the Jig RCU, it is required to set the VCR to the Jig RCU mode (the mode in which codes from the Jig RCU can be received). As both of the above two modes are stored in the EEPROM, it is required to set the VCR back to the User RCU mode each time that an adjustment is made or to check that the necessary operations have been completed. These modes can be set by the operations described below.

1.6.1 Setting the Jig RCU mode

(1) Unplug the power cord plug from the power outlet.
(2) Press and hold the "REC" and "PAUSE" buttons on the VCR simultaneously, while plugging the power cord plug into the power outlet.
When the VCR is set to the Jig RCU mode, the symbols (" : ") in the time display of the FDP are turned off.

1.6.2 Setting the User RCU mode

(1) Turn off the power.
(2) Press the "REC" and "PAUSE" buttons of the VCR simultaneously. Alternatively, transmit the code "80" from the Jig RCU.

1.7 Servicing items related to video navigation

The video navigation function built into this unit works by storing the video navigation data in the internal EEPROM and writing data in the cassette tape simultaneously.
The video navigation data stored in the EEPROM cannot be copied to another EEPROM. Therefore, when the circuit board mounting the EEPROM is replaced, the original EEPROM should be mounted on the new board. This will make the user's video navigation data usable with the new circuit board after replacement. However, the user's data cannot be restored if the EEPROM on the original circuit board is damaged.

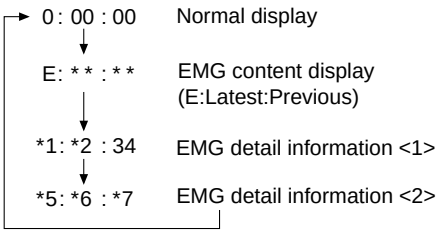
Note:

- ***If the circuit board mounting the EEPROM or the EEPROM alone has been replaced, it is required to perform confirmation/re-adjustment on all of the adjustment items using the EVR as well as those which are adjusted by transmitting adjustment codes from the Jig RCU.***

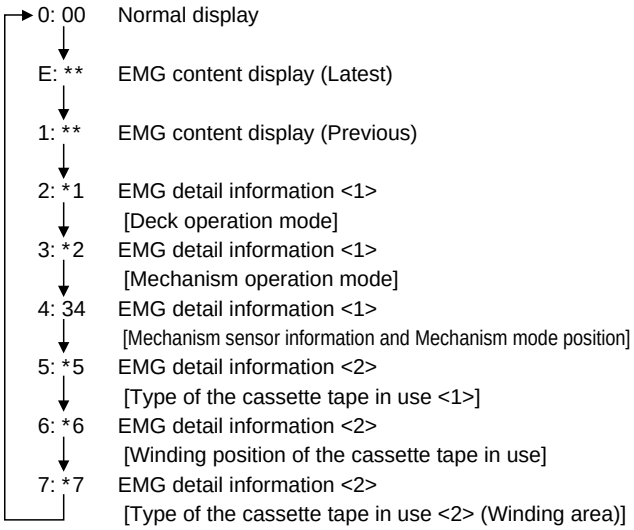
1.8 Emergency display function

This unit has a function for storing the history of the past two emergencies (EMG) and displaying them on each FDP (or OSD). With the status of the VCR and mechanism at the moment an emergency occurred can also be confirmed.

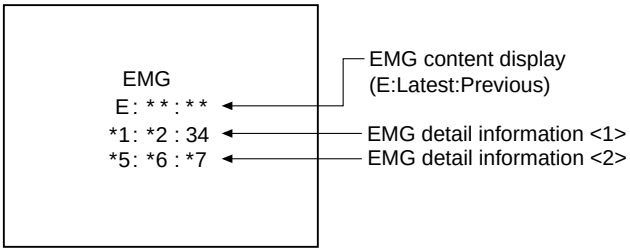
FDP display model
[FDP display]



FDP (7segment LED) display model
[FDP display]



OSD display model
[OSD display]



Notes:

- ***The EMG detail information <1><2> show the information on the latest EMG.***
  It becomes " – – : – – : – –" when there is no latest EMG record.
- ***When using the Jig RCU, it is required to set the VCR to the Jig RCU mode (the mode in which codes from the Jig RCU can be received).***

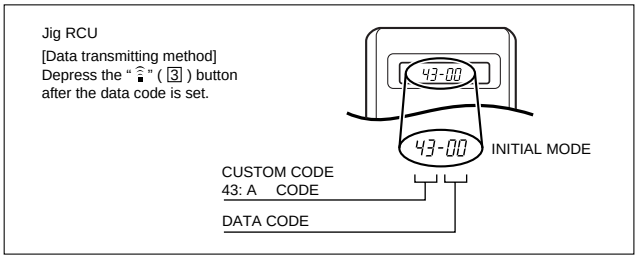
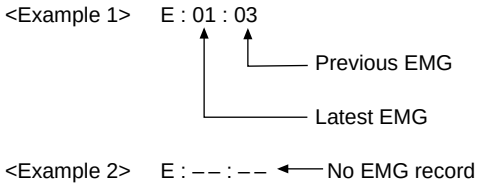


Fig. 1-8a Jig RCU [PTU94023B]

1.8.1 Displaying the EMG information

(1) Transmit the code "59" from the Jig RCU.
The FDP shows the EMG content in the form of "E: * * : * *".



(2) Transmit the code "59" from the Jig RCU again.
The FDP shows the EMG detail information <1> in the form of " *1: *2 : 34 ".

- *1 : Deck operation mode at the moment of EMG
- *2 : Mechanism operation mode at the moment of EMG
- 3– : Mechanism sensor information at the moment of EMG
- –4 : Mechanism mode position at the moment of EMG

(3) Transmit the code "59" from the Jig RCU once again.
The FDP shows the EMG detail information <2> in the form of " *5 : *6 : *7 ".

- *5 : Type of the cassette tape in use <1> .
- *6 : Winding position of the cassette tape in use
- *7 : Type of the cassette tape in use <2> (Winding area)

(4) Transmit the code "59" from the Jig RCU once again to reset the display.

Notes:

- ***For the OSD display model, all EMG information are showed by transmitting first code from the Jig RCU.***
- ***For the EMG content, see "1.8.3 EMG content description".***
- ***For the EMG detail information <1> , see "1.8.4 EMG detail information <1> ".***
- ***For the EMG detail information <2> , see "1.8.5 EMG detail information <2>".***

1.8.2 Clearing the EMG history

(1) Display the EMG history.
(2) Transmit the code "36" from the Jig RCU.
(3) Reset the EMG display.

1.8.3 EMG content description

Note: ***EMG contents "E08/E09" are for the model with Dynamic Drum (DD).***

FDP	CONTENT	CAUSE
E01: Loading EMG	When the mechanism mode cannot be changed to another mode even when the loading motor has rotated for more than 4 seconds in the loading direction, [E:01] is identified and the power is turned off.	1. The mechanism is locked in the middle of mode transition. 2. The mechanism is locked at the loading end due to the encoder position reading error during mode transition. 3. Power is not supplied to the loading MDA.
E02: Unloading EMG	When the mechanism mode cannot be changed to another mode even when the loading motor has rotated for more than 4 seconds in the unloading direction, [E:02] is identified and the power is turned off.	1. The mechanism is locked in the middle of mode transition. 2. The mechanism is locked at the unloading end due to the encoder position reading error during mode transition. 3. Power is not supplied to the loading MDA.
E03: Take Up Reel Pulse EMG	When the take-up reel pulse has not been generated for more than 4 seconds in the capstan rotating mode, [E:03] is identified, the pinch rollers are turned off and stopped, and the power is turned off. However, the reel EMG is not detected in STILL/SLOW modes.	1. The take-up reel pulse is not generated in the FWD transport modes (PLAY/FWD SEARCH/FF, etc.) because; 1) The idler gear is not meshed with the take-up reel gear; 2) The idler gear is meshed with the take-up reel gear, but incapable of winding due to too large mechanical load (abnormal tension); 3) The take-up reel sensor does not output the FG pulse. 2. The supply reel pulse is not generated in the REV transport modes (REV SEARCH/REW, etc.) because; 1) The idler gear is not meshed with the supply reel gear. 2) The idler gear is meshed with the supply reel gear, but incapable of winding due to too large a mechanical load (abnormal tension); 3) The supply reel sensor does not output the FG pulse. 3. Power is not supplied to the reel sensors.
E04: Drum FG EMG	When the drum FG pulse has not been input for more than 3 seconds in the drum rotating mode, [E:04] is identified, the pinch rollers are turned off and stopped, and the power is turned off.	1. The drum could not start or the drum rotation has stopped due to too large a load on the tape, because; 1) The tape tension is abnormally high; 2) The tape is damaged or a foreign object (grease, etc.) adheres to the tape. 2. The drum FG pulse did not reach the System controller CPU because; 1) The signal circuit is disconnected in the middle; 2) The FG pulse generator (hall device) of the drum is faulty. 3. The drum control voltage (DRUM CTL V) is not supplied to the MDA. 4. Power is not supplied to the drum MDA.
E05: Cassette Eject EMG	When the eject operation does not complete in 3 seconds after the start, [E:05] is identified, the pinch rollers are turned off and stopped, and the power is turned off. When the cassette insertion operation does not complete in 3 seconds after the start, the cassette is ejected. In addition, when the operation does not complete within 3 seconds after the start, [E:05] is also identified and the power is turned off immediately.	1. The cassette cannot be ejected due to a failure in the drive mechanism of the housing. 2. When the housing load increases during ejection, the loading motor is stopped because of lack of headroom in its drive torque. Housing load increasing factors: Temperature environment (low temperature, etc.), mechanism wear or failure. 3. The sensor/switch for detecting the end of ejection are not functioning normally. 4. The loading motor drive voltage is lower than specified or power is not supplied to the motor (MDA). 5. When the user attempted to eject a cassette, a foreign object (or perhaps the user's hand) was caught in the opening of the housing.
E06: Capstan FG EMG	When the capstan FG pulse has not been generated for more than 1 second in the capstan rotating mode, [E:06] is identified, the pinch rollers are turned off and stopped, and the power is turned off.However, the capstan EMG is not detected in STILL/SLOW/FF/REW modes.	1. The capstan could not start or the capstan rotation has stopped due to too large a load on the tape, because; 1) The tape tension is abnormally high (mechanical lock); 2) The tape is damaged or a foreign object (grease, etc.) is adhered to the tape (occurrence of tape entangling, etc.). 2. The capstan FG pulse did not reach the System controller CPU because; 1) The signal circuit is disconnected in the middle; 2) The FG pulse generator (MR device) of the capstans is faulty. 3. The capstan control voltage (CAPSTAN CTL V) is not supplied to the MDA. 4. Power is not supplied to the capstan MDA.
E07: SW Power Short-Circuit EMG	When short-circuiting of the SW power supply with GND has lasted for 0.5 second or more, [E:07] is identified, all the motors are stopped and the power is turned off.	1. The SW 5 V power supply circuit is shorted with GND. 2. The SW 12 V power supply circuit is shorted with GND.
E08: DD Initialized (Absolute Position Sensor) EMG	When DD tilting does not complete in 4 seconds, [E:08] is identified, the tilt motor is stopped and the power is turned off.	1. The absolute value sensor is defective. (The soldered parts have separated.) 2. The pull-up resistor at the absolute sensor output is defective. (The soldered parts have separated.) 3. Contact failure or soldering failure of the pins of the connector (board-to-board) to the absolute value sensor. 4. The absolute value sensor data is not sent to the System Controller CPU.
E09: DD FG EMG	When the DD FG pulse is not generated within 2.5 seconds, [E:09] is identified, the tilt motor is stopped and the power is turned off.	1. The FG sensor is defective. (The soldered parts have separated.) 2. The pull-up resistor at the FG sensor output is defective. (The soldered parts have separated.) 3. Contact failure or soldering failure of the pins of the connector (board-to-board) to the FG sensor. 4. The power to the sensor is not supplied. (Connection failure/soldering failure) 5. The FG pulse is not sent to the System Controller CPU. 6. The tilt motor is defective. (The soldered parts have separated.) 7. The drive power to the tilt motor is not supplied. (Connection failure/soldering failure) 8. The tilt motor drive MDA - IC is defective. 9. Auto-recovery of the DD tilting cannot take place due to overrun.
E0A: Supply Reel Pulse EMG	When the supply reel pulse has not been generated for more than 10 seconds in the capstan rotating mode, [E:0A] is identified and the cassette is ejected (but the power is not turned off). However, note that the reel EMG is not detected in the SLOW/STILL mode.	1. The supply reel pulse is not generated in the FWD transport mode (PLAY/FWD SEARCH/FF, etc.) because; 1) PLAY/FWD or SEARCH/FF is started while the tape in the inserted cassette is cut in the middle; 2) A mechanical factor caused tape slack inside and outside the supply reel side of the cassette shell. In this case, the supply reel will not rotate until the tape slack is removed by the FWD transport, so the pulse is not generated until then; 3) The FG pulse output from the supply reel sensor is absent. 2. The take-up reel pulse is not generated in the REV transport mode (REV SEARCH/REW, etc.). 1) REV SEARCH/REW is started when the tape in the inserted cassette has been cut in the middle; 2) A mechanical factor caused tape slack inside and outside the take-up reel side of the cassette shell. In this case, the supply reel will not rotate until the tape slack is removed by the REV transport, so the pulse will not be generated until that time; 3) The FG pulse output from the take-up reel sensor is absent. 3. The power to a reel sensor is not supplied.
EC1 or EU1: Head clog warning	Presupposing the presence of the control pulse output in the PLAY mode, when the value obtained by mixing the two V.FM output channels (without regard to the A.FM output) has remained below a certain threshold level for more than 10 seconds, [E:C1] or [E:U1] is identified and recorded in the emergency history. During the period in which a head clog is detected, the FDP and OSD repeat the "3-second warning display" and "7-second noise picture display" alternately. EMG code : "E:C1" or "E:U1" / FDP : "U:01" / OSD : "Try cleaning tape." or "Use cleaning cassette." The head clog warning is reset when the above-mentioned threshold has been exceeded for more than 2 seconds or the mode is changed to another mode than PLAY.	

Table 1-8-3a

1.8.4 EMG detail information <1>

The status (electrical operation mode) of the VCR and the status (mechanism operation mode/sensor information) of the mechanism in the latest EMG can be confirmed based on the figure in EMG detail information <1> .

[FDP/OSD display]

*1 : *2 : 34

*1 : Deck operation mode at the moment of EMG
*2 : Mechanism operation mode at the moment of EMG
3– : Mechanism sensor information at the moment of EMG
–4 : Mechanism mode position at the moment of EMG

Note:

- ***For EMG detailed information <1>, the content of the code that is shown on the FDP (or OSD) differs depending on the parts number of the system control microprocessor (IC3001) of the VCR. The system control microprocessor parts number starts with two letters, refer these to the corresponding table.***

***1 : Deck operation mode**
[Common table of MN*, HD* and M3*]

Display		Deck operation mode
MN*/M3*	HD*	
00	-	Mechanism being initialized
01	00	STOP with pinch roller pressure off (or tape present with P.OFF)
02	01	STOP with pinch roller pressure on
03	-	POWER OFF as a result of EMG
04	04	PLAY
0C	0E	REC
10	11	Cassette ejected
20	22	FF
21	-	Tape fully loaded, START sensor ON, short FF
22	-	Cassette identification FWD SEARCH before transition to FF (SP x7-speed)
24	26	FWD SEARCH (variable speed) including x2-speed
2C	2E	INSERT REC
40	43	REW
42	-	Cassette identification REV SEARCH before transition to REW (SP x7-speed)
44	47	REV SEARCH (variable speed)
4C	4C	AUDIO DUB
6C	6E	INSERT REC (VIDEO + AUDIO)
84	84	FWD STILL / SLOW
85	85	REV STILL / SLOW
8C	8F	REC PAUSE
8D	-	Back spacing
8E	-	Forward spacing (FWD transport mode with BEST function)
AC	AF	INSERT REC PAUSE
AD	-	INSERT REC back spacing
CC	CD	AUDIO DUB PAUSE
CD	-	AUDIO DUB back spacing
EC	EF	INSERT REC (VIDEO + AUDIO) PAUSE
ED	-	INSERT REC (VIDEO + AUDIO) back spacing

***2 : Mechanism operation mode**
[Common table of MN* and M3*]

Display		Mechanism operation mode
MN*	M3*	
00	00	Command standby (Status without executing command)
02	02	POWER OFF by EMG occurrence
04	04	Moving to the adjacent position in the LOAD direction
06	06	Moving to the adjacent position in the UNLOAD direction
08	08	Cassette ejection being executed / Cassette housing ejection being executed
-	0A	Mode transition to STOP with cassette ejection end
0A	0C	Cassette insertion being executed
0C	0E	Tape being loaded
0E	10	Tape being unloaded
10	12	Mode transition to STOP with pinch roller compression ON
12	14	Mode transition to STOP with pinch roller compression OFF
14	16	Mode transition to STOP with pinch roller compression OFF as a result of POWER OFF
16	18	Mode transition to STOP with pinch roller compression ON as a result of POWER ON
18	1A	Mode transition to PLAY
1A	1C	Mode transition to FWD SEARCH
1C	1E	Mode transition to REC
1E	20	Mode transition to FWD STILL / SLOW
20	22	Mode transition to REV STILL / SLOW
22	24	Mode transition to REV SEARCH
24	26	Mode transition from FF / REW to STOP
26	28	Mode transition to FF
28	2A	Mode transition to REW
2A	2C	4 sec. of REV as a result of END sensor going ON during loading
2C	2E	Short FF / REV as a result of END sensor going ON during unloading
2E	30	Mechanism position being corrected due to overrun
80	80	Mechanism in initial position (Dummy command)

[Table of HD*]

Display	Mechanism operation mode
00	STOP with pinch roller pressure off
01	STOP with pinch roller pressure on
02	U/L STOP (or tape being loaded)
04	PLAY
05	PLAY (x1-speed playback using JOG)
0E	REC
11	Cassette ejected
22	FF
26	FWD SEARCH (variable speed) including x2-speed
2E	INSERT REC
43	REW
47	REV SEARCH
4C	AUDIO DUB
6E	INSERT REC (VIDEO + AUDIO)
84	FWD STILL/SLOW
85	REV STILL/SLOW
8F	REC PAUSE
AF	INSERT REC PAUSE
C7	REV SEARCH (x1-speed reverse playback using JOG)
CD	AUDIO DUB PAUSE
EF	INSERT REC (VIDEO + AUDIO) PAUSE
F0	Mechanism being initialized
F1	POWER OFF as a result of EMG
F2	Cassette being inserted
F3	Cassette being ejected
F4	Transition from STOP with pinch roller pressure on to STOP with pinch roller pressure off
F5	Transition from STOP with pinch roller pressure on to PLAY
F6	Transition from STOP with pinch roller pressure on to REC
F7	Cassette type detection SEARCH before FF/REW is being executed
F8	Tape being unloaded
F9	Transition from STOP with pinch roller pressure off to STOP with pinch roller pressure on
FA	Transition from STOP with pinch roller pressure off to FF/REW
FB	Transition from STOP with pinch roller pressure off to REC.P (T.REC,etc.)
FC	Transition from STOP with pinch roller pressure off to cassette type detection SEARCH
FD	Short REV being executed after END sensor on during unloading
FE	Tension loosening being executed after tape loading (STOP with pinch roller pressure on)

3– : Mechanism sensor information
[Common table of MN*, HD* and M3*]

Display	Mechanism sensor information				
	MN* / HD* S-VHS SW	M3* CASS SW	REC safety SW	Start sensor	End sensor
0-	VHS	Cassette insertion	Tab broken	ON	ON
1-	VHS	Cassette insertion	Tab broken	ON	OFF
2-	VHS	Cassette insertion	Tab broken	OFF	ON
3-	VHS	Cassette insertion	Tab broken	OFF	OFF
4-	VHS	Cassette insertion	Tab present	ON	ON
5-	VHS	Cassette insertion	Tab present	ON	OFF
6-	VHS	Cassette insertion	Tab present	OFF	ON
7-	VHS	Cassette insertion	Tab present	OFF	OFF
8-	S-VHS	Cassette ejection	Tab broken	ON	ON
9-	S-VHS	Cassette ejection	Tab broken	ON	OFF
A-	S-VHS	Cassette ejection	Tab broken	OFF	ON
B-	S-VHS	Cassette ejection	Tab broken	OFF	OFF
C-	S-VHS	Cassette ejection	Tab present	ON	ON
D-	S-VHS	Cassette ejection	Tab present	ON	OFF
E-	S-VHS	Cassette ejection	Tab present	OFF	ON
F-	S-VHS	Cassette ejection	Tab present	OFF	OFF

–4 : Mechanism mode position
[Common table of MN*, HD* and M3*]

Display			Mechanism mode position
MN*	HD*	M3*	
-0	-7	-	Initial value
-1	-0	-	EJECT position
-	-	-0	EJECT position (Cassette housing drive mode)
-2	-7	-	Housing operating
-	-	-1	Between EJECT and U / L STOP
-3	-1	-2	U / L STOP position
-	-	-3	Guide arm drive position
-4	-7	-4	Tape being loaded / unloaded (When the pole base is located on the front side of the position just beside the drum)
-5	-2	-5	Tape being loaded / unloaded (When the pole base is located on the rear side of the position just beside the drum)
-6	-7	-6	Pole base compressed position
-7	-3	-F	FF / REW position
-8	-7	-F	Between FF / REW and STOP with pinch roller compression ON
-9	-4	-F	STOP with pinch roller compression OFF
-A	-7	-E	Between STOP with pinch roller compression OFF and REV
-B	-5	-	REV (REV STILL / SLOW) position
-	-	-D	REV position
-	-	-C	Between REV and REV STILL / SLOW
-	-	-B	REV STILL / SLOW position
-C	-7	-	Between REV and FWD
-	-	-A	Between REV STILL / SLOW and FWD STILL / SLOW
-D	-6	-	FWD (FWD STILL / SLOW) position
-	-	-9	FWD STILL / SLOW position
-E	-7	-	Between FWD and PLAY
-	-	-8	Between FWD STILL / SLOW and PLAY
-F	-6	-7	PLAY position

Note:
- ***In the case of the "HD*" microprocessor, as the display is always "-7" at any intermediate position between modes, the position of transitory EMG may sometimes not be located.***

1.8.5 EMG detail information <2>

The type of the cassette tape and the cassette tape winding position can be confirmed based on the figure in EMG detail information <2> .

[FDP/OSD display]

*5 :*6 :*7

*5 : Type of the cassette tape in use <1>
*6 : Winding position of the cassette tape in use
*7 : Type of the cassette tape in use <2> (Winding area)

Note:
- ***EMG detail information <2> is the reference information stored using the remaining tape detection function of the cassette tape. As a result, it may not identify cassette correctly when a special cassette tape is used or when the tape has variable thickness.***

***5 : Cassette tape type <1>**

Display	Cassette tape type <1>
00	Cassette type not identified
16	Large reel/small reel (T-0 to T-15/T-130 to T-210) not classified
82	Small reel, thick tape (T-120) identified/thin tape (T-140) identified
84	Large reel (T-0 to T-60) identified
92	Small reel, thick tape (T-130) identified/thin tape (T-160 to T-210) identified
93	Small reel, thick tape/C cassette (T-0 to T-100/C cassette) not classified
C3	Small reel, thick tape/C cassette (T-0 to T-100/C cassette) being classified
D3	Small reel, thick tape/C cassette (T-0 to T-100/C cassette) being classified
E1	C cassette, thick tape (TC-10 to TC-20) identified
E2	Small reel, thick tape (T-0 to T-100) identified
E9	C cassette, thin tape (TC-30 to TC-40) identified
F1	C cassette, thick tape/thin tape (TC-10 to TC-40) not classified

Notes:
- ***Cassette tape type <1> is identified a few times during mode transition and the identification count is variable depending on the cassette tape type. If an EMG occurs in the middle of identification, the cassette tape type may not be able to be identified.***
- ***If other value than those listed in the above table is displayed, the cassette tape type is not identified.***

***6 : Cassette tape winding position**

The cassette tape winding position at the moment of EMG is displayed by dividing the entire tape (from the beginning to the end) in 22 sections using a hex number from “00” to “15”.

“00” : End of winding
“15” : Beginning of winding
“FF or ––” : Tape position not identified

***7 : Cassette tape type <2> (Winding area)**

Display	Cassette tape type <2>	
00	Cassette type not identified	
07	Small reel, thick tape	T-5
08 - 0E	C cassette, thick tape	TC-10
09 - 15	C cassette, thick tape	TC-20P
0A - 0B	Small reel, thick tape	T-20
0A - 16	C cassette, thin tape	TC-30
0A - 16	C cassette, thin tape	TC-40
0D - 0F	Small reel, thick tape	T-40
11 - 14	Small reel, thick tape	T-60
15 - 18	Small reel, thick tape	T-80 / DF-160
17 - 1A	Small reel, thick tape	T-90 / DF-180
19 - 1D	Small reel, thick tape	T-100
1D - 21	Small reel, thick tape	T-120 / DF-240
1E - 1F	Small reel, thin tape	T-140
1F - 23	Small reel, thick tape	T-130
21 - 23	Small reel, thin tape	T-160
21 - 23	Small reel, thin tape	T-168
22 - 24	Small reel, thick tape	DF-300
22 - 24	Small reel, thin tape	T-180 / DF-360
22 - 24	Small reel, thin tape	T-210 / DF-420
22 - 23	Large reel	T-5
23 - 24	Large reel	T-10
25 - 26	Large reel	T-20
27 - 29	Large reel	T-30
29 - 2B	Large reel	T-40
2D - 2F	Large reel	T-60

Note:
- ***The values of cassette tape type <2> in the above table are typical values with representative cassette tapes.***

SECTION 2
MECHANISM ADJUSTMENT

2.1 Before starting repair and adjustment

2.1.1 Precautions

(1) Unplug the power cord plug of the VCR before using your soldering iron.
(2) Take care not to cause any damage to the conductor wires when plugging and unplugging the connectors.
(3) Do not randomly handle the parts without identifying where the trouble is.
(4) Exercise enough care not to damage the lugs, etc. during the repair work.
(5) When reattaching the front panel assembly, make sure that the door opener of the cassette holder assembly is lowered in position prior to the reinstallation. (See SECTION 1 DISASSEMBLY.)
(6) When using the Jig RCU, it is required to set the VCR to the Jig RCU mode (the mode in which codes from the Jig RCU can be received). (See SECTION 1 DISASSEMBLY.)

2.1.2 Checking for proper mechanical operations

Enter the mechanism service mode when you want to operate the mechanism when no cassette is loaded. (See SECTION 1 DISASSEMBLY.)

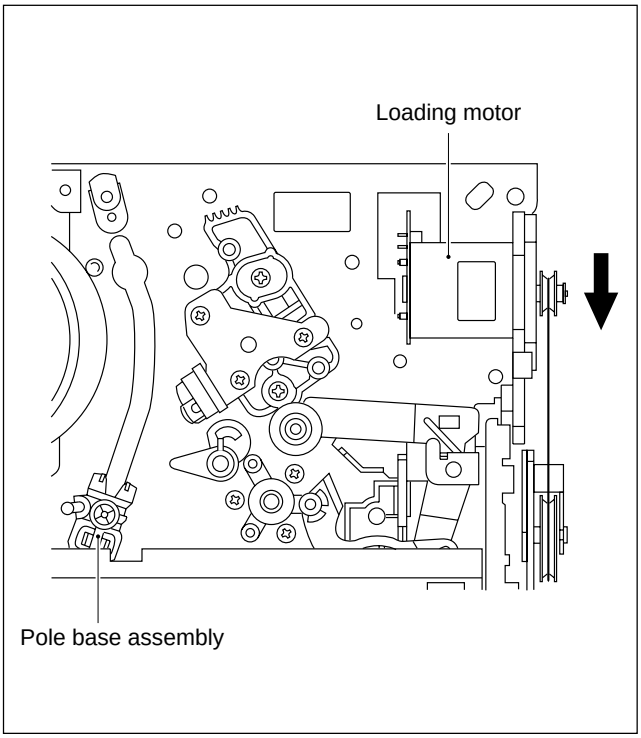


Fig. 2-1-3a

2.1.3 Manually removing the cassette tape

1. In case of electrical failures

If you cannot remove the cassette tape which is loaded because of any electrical failure, manually remove it by taking the following steps.

(1) Unplug the power cord plug from the power outlet.
(2) Refer to the disassembly procedure and perform the disassembly of the major parts before removing the drum assembly.
(3) Unload the pole base assembly by manually turning the loading motor of the mechanism assembly toward the front. In doing so, hold the tape by the hand to keep the slack away from any grease. (See Fig.2-1-3a.)
(4) Bring the pole base assembly to a pause when it reaches the position where it is hidden behind the cassette tape.
(5) Move the top guide toward the drum while holding down the lug (A) of the bracket retaining the top guide. Likewise hold part (B) down and remove the top guide. Section (C) of the top guide is then brought under the cassette lid. Then remove the top guide by pressing the whole cassette tape down. (See Fig.2-1-3b.)
(6) Remove the cassette tape by holding both the slackened tape and the cassette lid.
(7) Take up the slack of the tape into the cassette. This completes removal of the cassette tape.

Note:

- ***For the disassembly procedure of the major parts and details of the precautions to be taken, see "SECTION 1 DISASSEMBLY".***

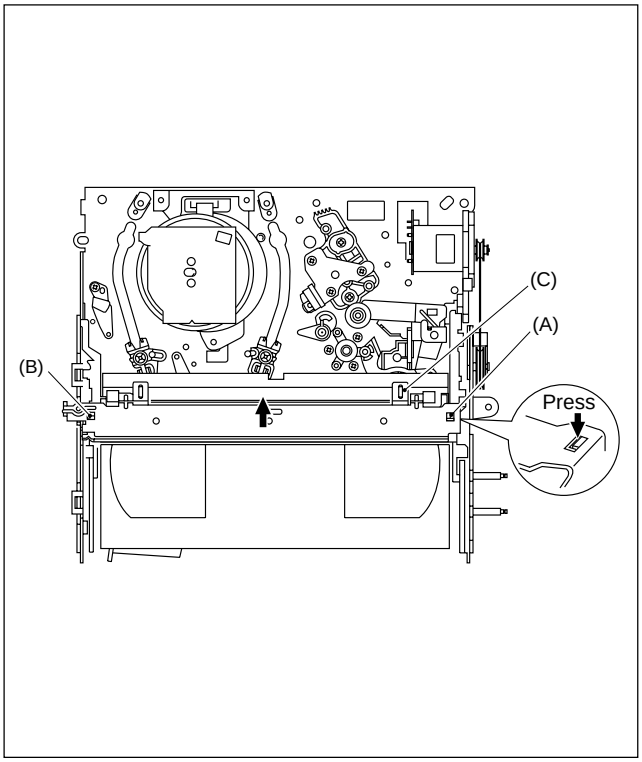


Fig. 2-1-3b

2. In case of mechanical failure

If you cannot remove the cassette tape which is loaded because of any mechanical failure, manually remove it by taking the following steps.

(1) Unplug the power cable and remove the top cover, front panel assembly and others so that the mechanism assembly is visible. (See SECTION 1 DISASSEMBLY.)
(2) While keeping the tension arm assembly of the mechanism assembly free from tension, pull the tape on the pole base assembly (supply or take-up side) out of the guide roller. (See Fig.2-1-3c.)
(3) Take the spring of the pinch roller arm assembly off the hook of the press lever assembly, and detach it from the tape. (See Fig.2-1-3d.)
(4) In the same way as in the electrical failure instructions in 2.1.3-1(5), remove the top guide.
(5) Raise the cassette tape cover. By keeping it in that position, draw out the cassette tape case from the cassette holder and take out the tape.
(6) By hanging the pinch roller arm assembly spring back on the hook, take up the slack of the tape into the cassette.

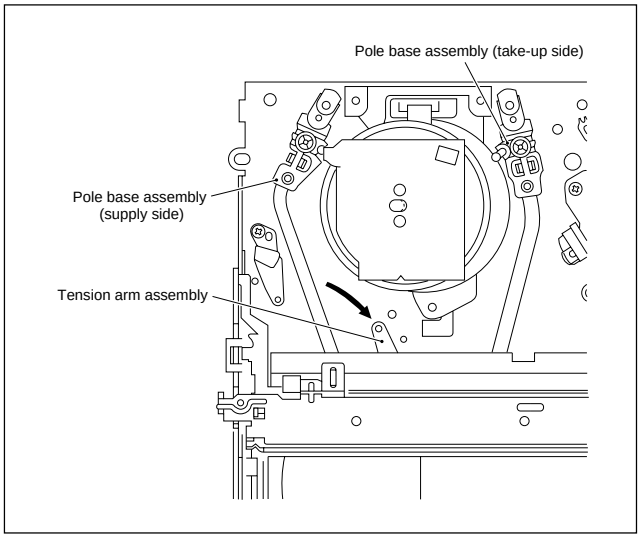


Fig. 2-1-3c

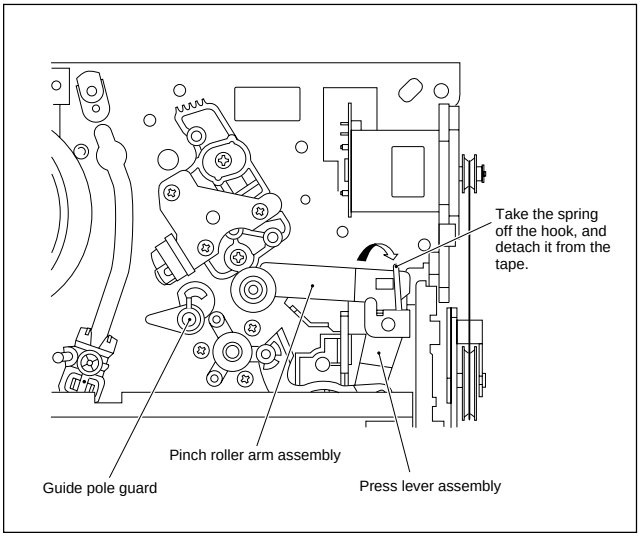
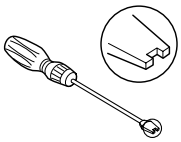
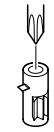
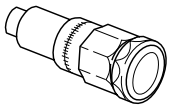
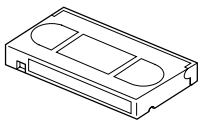
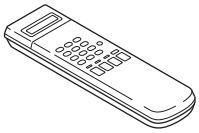
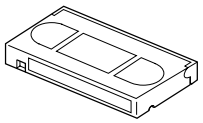
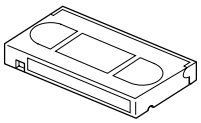


Fig. 2-1-3d

2.1.4 Jigs and tools required for adjustment

Roller driver PTU94002	A/C head positioning tool PTU94010	Torque gauge PUJ48075-2
		
Back tension cassette gauge PUJ48076-2	Jig RCU PTU94023B	
		
Alignment tape (SP, stairstep, PAL) MHPE	Alignment tape (LP, stairstep, PAL) MHPE-L	
		

2.1.5 Maintenance and inspection

1. Location of major mechanical parts

In this chapter, the two mechanism speeds are described by comparing the speeds of the standard type and the high-speed FF/REW type.
It is possible to distinguish between these two types of mechanism by the diameters of their capstan pulleys.
The capstan pulley diameter for the standard type is approx. 32 mm.
The capstan pulley diameter for the high-speed FF/REW type is approx. 43 mm.
For information on the different parts used in the two mechanism types, please refer to the “Replacement of major parts”.

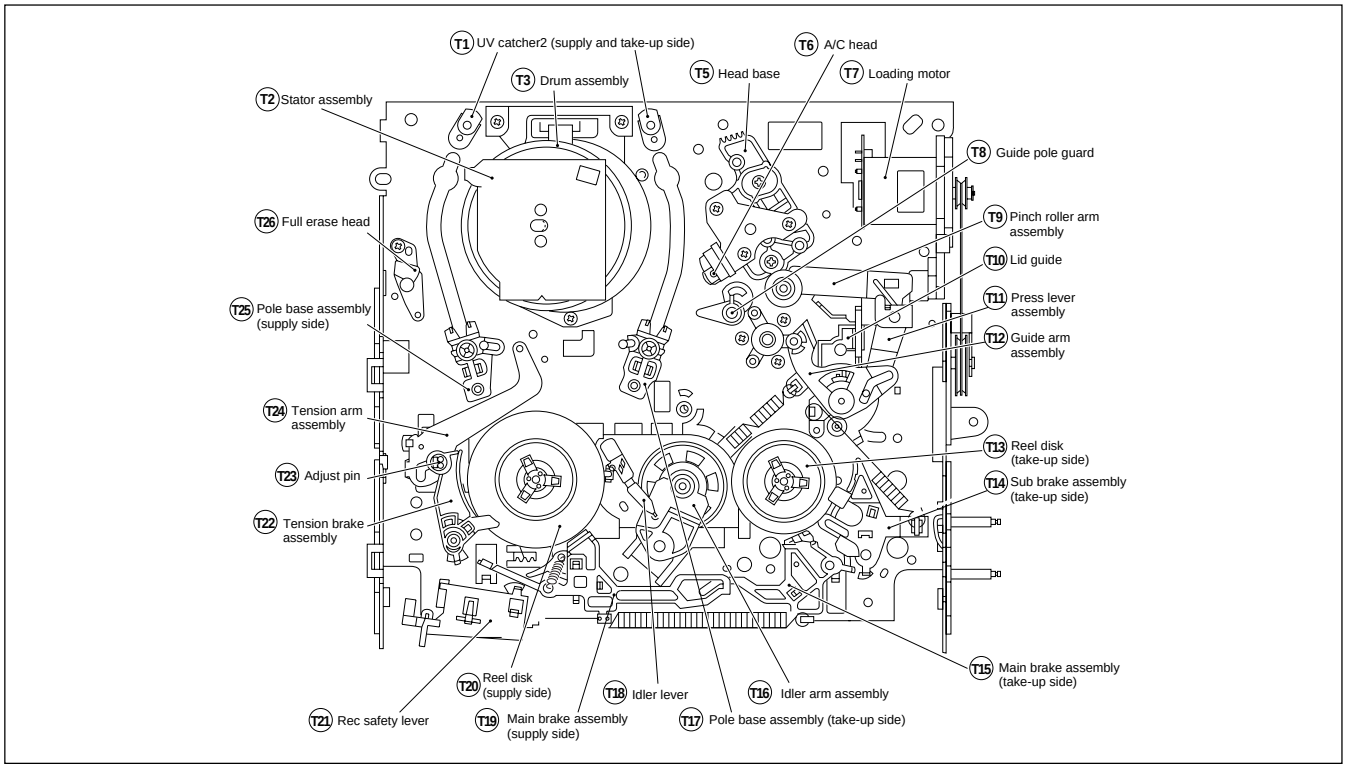

T1 UV catcher2 (supply and take-up side)
T6 A/C head
T3 Drum assembly
T5 Head base
T7 Loading motor
T2 Stator assembly
T8 Guide pole guard
T26 Full erase head
T9 Pinch roller arm assembly
T10 Lid guide
T25 Pole base assembly (supply side)
T11 Press lever assembly
T12 Guide arm assembly
T24 Tension arm assembly
T13 Reel disk (take-up side)
T23 Adjust pin
T14 Sub brake assembly (take-up side)
T22 Tension brake assembly
T15 Main brake assembly (take-up side)
T20 Reel disk (supply side)
T18 Idler lever
T16 Idler arm assembly
T21 Rec safety lever
T19 Main brake assembly (supply side)
T17 Pole base assembly (take-up side)

Fig. 2-1-5a Mechanism assembly top side

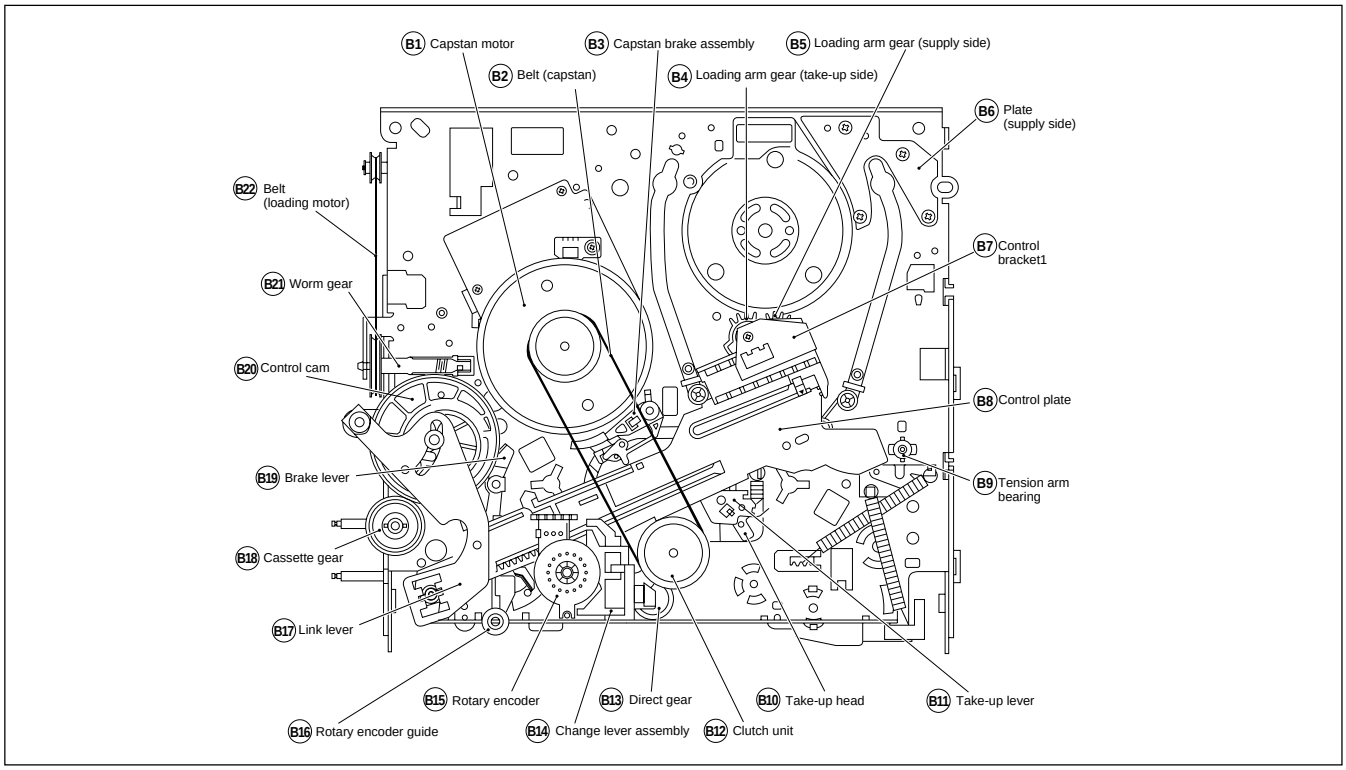


Fig. 2-1-5b Mechanism assembly bottom side

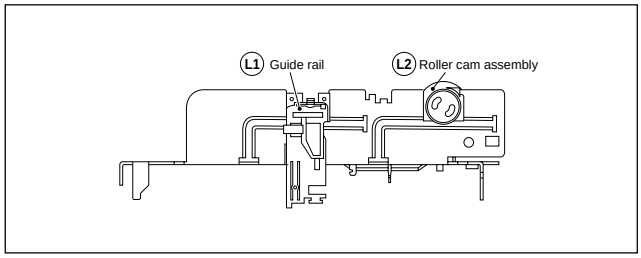


Fig. 2-1-5c Mechanism assembly left side

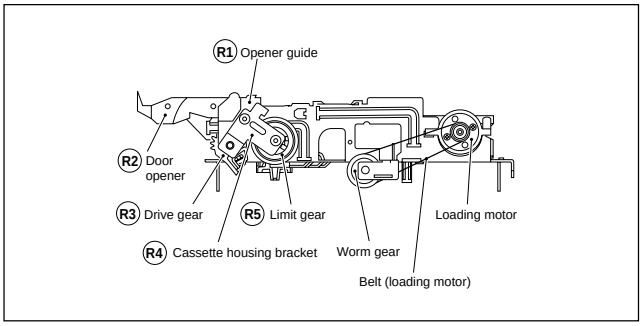


Fig. 2-1-5d Mechanism assembly right side

2. Cleaning

Regular cleaning of the transport system parts is desirable but practically impossible. So make it a rule to carry out cleaning of the tape transport system whenever the machine is serviced.

When the video head, tape guide and/or brush get soiled, the playback picture may appear inferior or at worst disappear, resulting in possible tape damage.

(1) When cleaning the upper drum (especially the video head), soak a piece of closely woven cloth or Kimu-wipe with alcohol and while holding the cloth onto the upper drum by the fingers, turn the upper drum counterclockwise.

Note:

- ***Absolutely avoid sweeping the upper drum vertically as this will cause damage to the video head.***

(2) To clean the parts of the tape transport system other than the upper drum, use a piece of closely woven cloth or a cotton swab soaked with alcohol.

(3) After cleaning, make sure that the cleaned parts are completely dry before using the video tape.

3. Lubrication

With no need for periodical lubrication, you have only to lubricate new parts after replacement. If any oil or grease on contact parts is soiled, wipe it off and newly lubricate the parts.

Note:

- ***See the "mechanism assembly" diagram of the parts list for the lubricating or greasing spots, and for the types of oil or grease to be used.***

4. Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning,lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions.However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary. Also note that rubber parts may deform in time,even if the set is not used.

System	Parts Name	Operation Hours	
		~1000H	~2000H
Tape transport	Upper drum assembly	★○	○
	A/C head	★○	★○
	Lower drum assembly	★	★○
	Pinch roller arm assembly	★	★
	Full erase head	★	★
	Tension arm assembly	★	★
	Capstan motor (Shaft)	★	★
	Guide arm assembly	★	★
Drive	Capstan motor		○
	Capstan brake assembly		○
	Main brake assembly		○
	Belt (Capstan)	○	○
	Belt (Loading motor)		○
	Loading motor		○
	Clutch unit		○
	Worm gear		○
	Control plate		○
Other	Brush	★○	★○
	Tension brake assembly	○	○
	Rotary encoder		○

★ : Cleaning

○ : Inspection or replacement if necessary

Table 2-1-5a

5. Disassembling procedure table

The following table indicates the order in which parts are removed for replacement. To replace parts, remove them in the order of 1 to 18 as shown in the table. To install them, reverse the removal sequence.

The symbols and numbers preceding the individual part names represent the numbers in the "Location of major mechanical parts" table. Also, the "T", "B", and "T/B" on the right of each part name shows that the particular part is removed from the front, from the back, and from both sides of the mechanism, respectively.

Symbols and numbers	Removal parts / (Reference items) Replacement parts	Front (T)/Back (B) of mechanism	Number of removal steps	L1 Guide rail	L2 Roller cam assembly	R4 Cassette housing bracket	R1 Opener guide	— Relay gear	— Cassette holder assembly	R3 Drive gear	— Drive arm	T9 Pinch roller arm assembly	T12 Guide arm assembly	T11 Press lever assembly	T1 UV catcher2	B15 Rotary encoder	B12 Clutch unit	B14 Change lever assembly	B13 Direct gear	— Coupling gear	B17 Link lever	B21 Worm gear	B7 Control bracket1	B8 Control plate	B5 Loading arm gear (supply side)	B4 Loading arm gear (take-up side)	B11 Take-up lever	T14 Sub brake assembly (take-up side)	T15 Main brake assembly (take-up side)	T13 Reel disk (take-up side)	T22 Tension brake assembly	T24 Tension arm assembly	T18 Idler lever	B19 Brake lever (*1)
L1	2.2.3 Guide rail	T	1																															
L2	2.2.3 Roller cam assembly	T	1																															
R4	2.2.3 Cassette housing bracket	T	1																															
R1	2.2.3 Opener guide	T	2			1																												
R2	2.2.3 Door opener	T	3			1	2																											
—	2.2.3 Relay gear	T	3			1	2																											
R5	2.2.3 Limit gear	T	3			1	2																											
—	2.2.3 Cassette holder assembly	T	6	1	2	3	4	5																										
R3	2.2.3 Drive gear	T	4			1	2	3																										
—	2.2.3 Drive arm	T	8	1	2	3	4	5	6	7																								
T9	2.2.4 Pinch roller arm assembly	T	1																															
T12	2.2.5 Guide arm assembly	T	1																															
T11	2.2.5 Press lever assembly	T	3									1	2																					
T6	2.2.6 A/C head	T	1																															
T7	2.2.7 Loading motor	T	1																															
B1	2.2.8 Capstan motor	T/B	1																															
T1	2.2.9 UV catcher2	T	1																															
T17	2.2.9 Pole base assembly (take-up side)	T/B	2												1																			
T25	2.2.9 Pole base assembly (supply side)	T/B	2												1																			
B15	2.2.10 Rotary encoder	B	1																															
B12	2.2.11 Clutch unit	B	1																															
B14	2.2.12 Change lever assembly	B	3													1	2																	
B13	2.2.12 Direct gear	B	4													1	2	3																
—	2.2.12 Coupling gear	B	5													1	2	3	4															
—	2.2.12 Clutch gear	B	6													1	2	3	4	5														
B17	2.2.13 Link lever	B	1																															
B18	2.2.14 Cassette gear	B	2																		1													
B20	2.2.14 Control cam	B	2																		1													
B21	2.2.14 Worm gear	B	1																															
T10	- Lid guide	T/B	5									1	2	3								4												
B7	2.2.15 Control bracket1	B	1																															
B8	2.2.15 Control plate	B	6													1	2	3			4		5											
B5	2.2.16 Loading arm gear (supply side)	B	7													1	2	3			4		5	6										
B4	2.2.16 Loading arm gear (take-up side)	B	8													1	2	3			4		5	6	7									
—	2.2.16 Loading arm gear shaft	B	9													1	2	3			4		5	6	7	8								
B11	2.2.17 Take-up lever	T/B	7													1	2	3			4		5	6										
B10	2.2.17 Take-up head	T/B	8													1	2	3			4		5	6			7							
—	2.2.17 Control plate guide	T/B	8													1	2	3			4		5	6			7							
B3	2.2.18 Capstan brake assembly	T/B	7													1	2	3			4		5	6										
T14	2.2.19 Sub brake assembly(take-up side)	T/B	15	1	2	3	4	5	6	7	8					9	10	11			12		13	14										
T15	2.2.20 Main brake assembly(take-up side)	T/B	16	1	2	3	4	5	6	7	8					9	10	11			12		13	14				15						
T19	2.2.20 Main brake assembly(supply side)	T/B	9	1	2	3	4	5	6	7	8																							
T13	2.2.20 Reel disk (take-up side)	T/B	16	1	2	3	4	5	6	7	8					9	10	11			12		13	14				15						
T22	2.2.21 Tension brake assembly	T/B	9	1	2	3	4	5	6	7	8																							
T20	2.2.21 Reel disk (supply side)	T/B	10	1	2	3	4	5	6	7	8																				9			
T24	2.2.21 Tension arm assembly	T/B	10	1	2	3	4	5	6	7	8																				9			
B9	2.2.21 Tension arm bearing	T/B	10	1	2	3	4	5	6	7	8																				9			
T18	2.2.22 Idler lever	T/B	17	1	2	3	4	5	6	7	8					9	10	11			12		13	14							15	16		
T16	2.2.22 Idler arm assembly	T/B	18	1	2	3	4	5	6	7	8					9	10	11			12		13	14							15	16	17	
B19	- Brake lever (*1)	T/B	18	1	2	3	4	5	6	7	8					9	10	11			12		13	14				15	16	17				
B16	- Rotary encoder guide	T/B	19	1	2	3	4	5	6	7	8					9	10	11			12		13	14				15	16	17				18

Table 2-1-5b

Note:

- ***The parts with marked (*) have different types of mechanisms (standard type or high-speed FF/REW type).***
  - ****1 : Uses the standard type mechanism only.***
  - ****2 : Uses the high-speed FF/REW type mechanism only.***

2.2 Replacement of major parts

2.2.1 Before starting disassembling (Phase matching between mechanical parts)

The mechanism of this unit is closely linked with the rotary encoder and system controller circuits.
Since the system controller detects the status of mechanical operation in response to phases of the rotary encoder (internal switch positions), the mechanism may not operate properly unless such parts as the rotary encoder, control plate, loading arm gear, control cam, cassette gear, limit gear, relay gear and drive gear are installed in their correct positions.
Especially, this model is not provided with any cassette housing assembly, so that cassette loading and unloading must be accomplished by operation of the cassette holder assembly. The latter is in turn driven by such parts as the drive gear, relay gear and limit gear. Exercise enough care, therefore, to have the phases of all this gear matching one another. (For information on phase matching of the mechanism, see the instructions on how to install individual parts.)
This unit is provided with a mechanism assembly mode. It is therefore necessary to enter this mode for assembling and disassembling procedures.
This mode is usually not in use, manually set it when it is required.

2.2.2 How to set the “Mechanism assembling mode”

Remove the mechanism assembly and place it bottom side up. (See SECTION 1 DISASSEMBLY.) Turn the worm gear toward the front so that the guide hole of the control cam is brought into alignment with the hole at the mechanism assembly chassis. This position renders the mechanism assembling mode operational. Make sure that the control plate is located in alignment with the mark E. (See Fig.2-2-2a.)

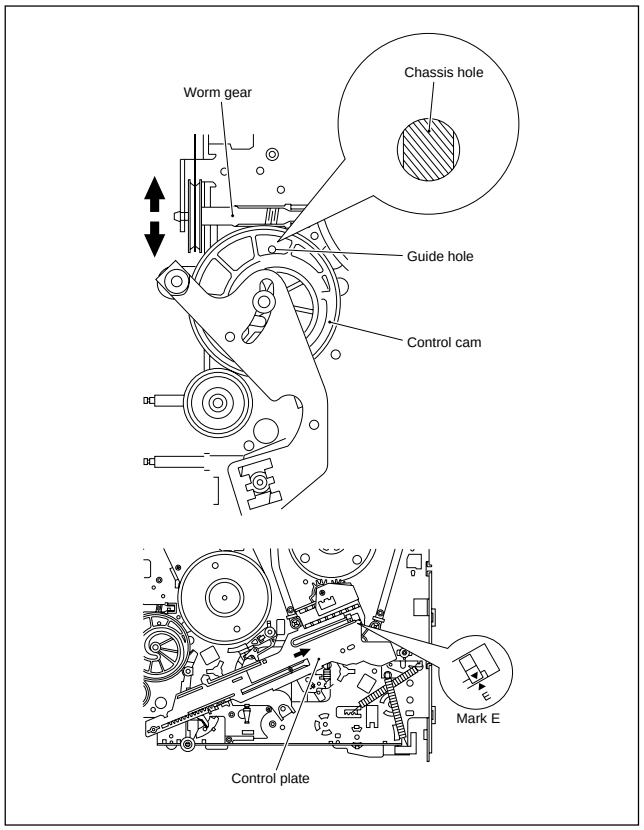


Fig. 2-2-2a

2.2.3 Cassette holder assembly

1. How to remove

(1) Remove the guide rail and roller cam assembly. (See Fig.2-2-3a.)
(3 lugs on the guide rail and one lug on the roller cam assembly)

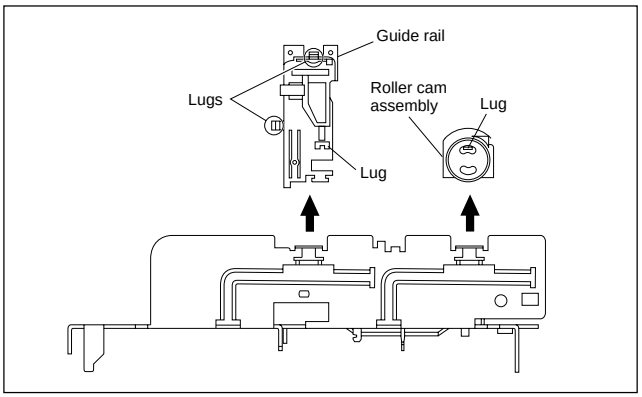


Fig. 2-2-3a

(2) Remove the two slit washers and remove the cassette housing bracket. (See Fig.2-2-3b.)
(3) Remove the opener guide, spring(A), door opener, relay gear and limit gear. (See Fig.2-2-3b.)

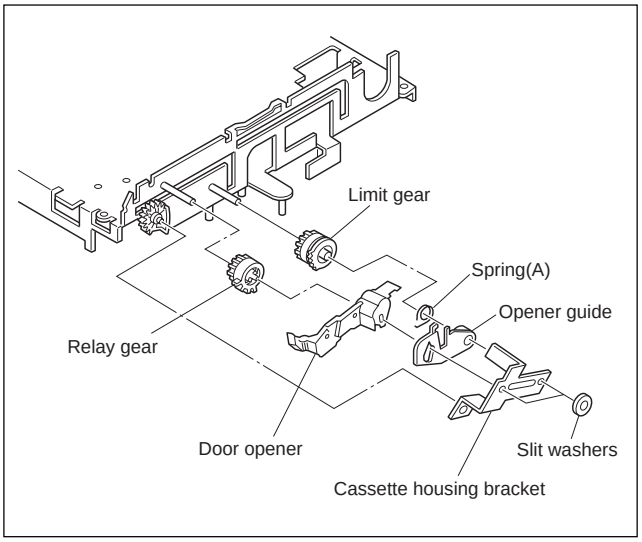


Fig. 2-2-3b

(4) While swinging the lock levers (R) and (L) of the cassette holder assembly toward the front, slide the cassette holder assembly until its legs come to where the guide rail and the roller cam assembly have been removed (so that the drive arm is upright). (See Fig.2-2-3c.)

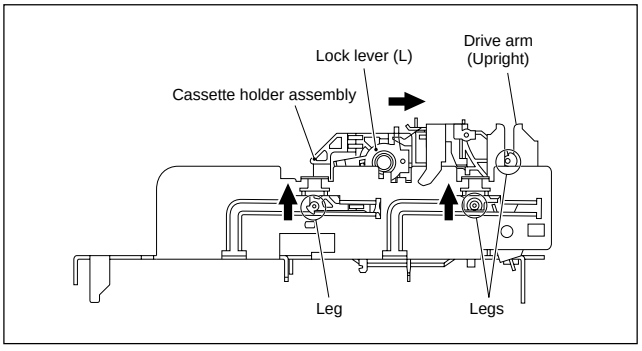


Fig. 2-2-3c

(5) While holding the left side of the cassette holder, lift the cassette holder assembly so that the three legs on the left side are all released. Then pull the legs (A) and (B) on the right side out of the rail and also pull up the leg(C). (See Fig.2-2-3d and Fig.2-2-3e.)
(6) Draw out the drive gear, and remove the drive arm.

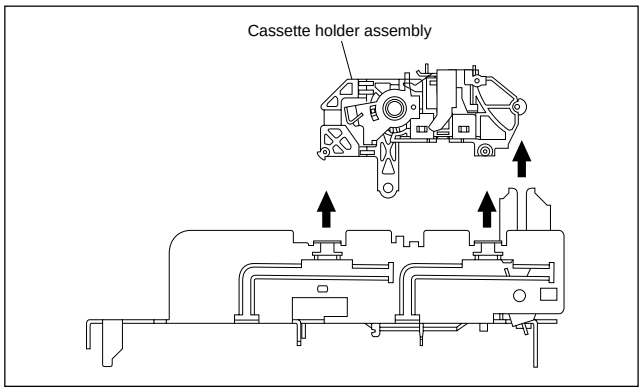


Fig. 2-2-3d

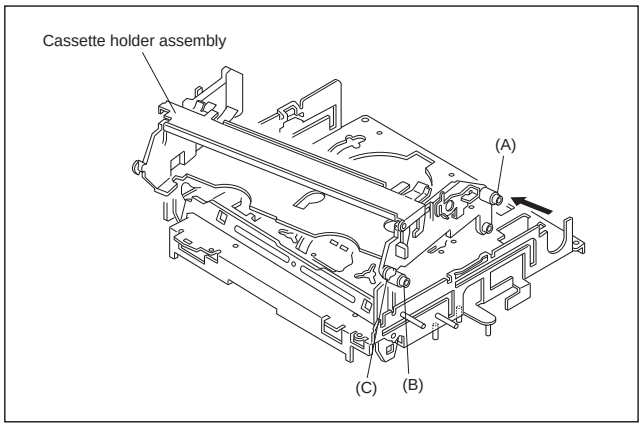


Fig. 2-2-3e

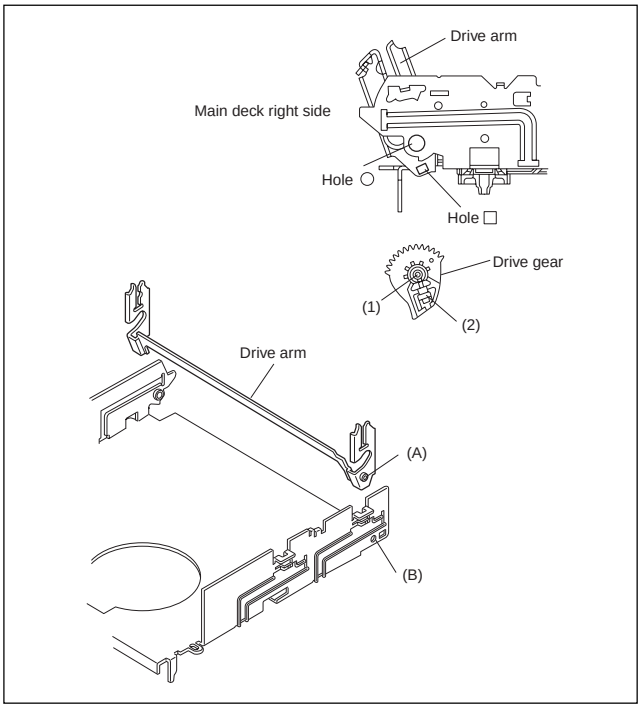


Fig. 2-2-3f

2. How to install (Phase matching)

(1) Insert the section (A) of the drive arm into the section (B) of the main deck.
(2) Insert the section (1) of the drive gear into the round hole, and the section (2) into the square hole on the drive arm. (See Fig.2-2-3f.)
(3) Hold the drive arm upright and fit the leg (C) on the right side of the cassette holder assembly into the groove. (See Fig.2-2-3g.)
(4) While swinging the lock lever (R) of the cassette holder assembly toward the front, put the legs (A) and (B) into the rail. (See Fig.2-2-3g.)
(5) Drop the three legs on the left side of the cassette holder assembly into the groove at one time. (See Fig.2-2-3h.)
(6) Slide the whole cassette holder assembly toward the front to bring it to the eject end position.
(7) Install the limit gear so that the notch on the outer circumference of the limit gear is brought into alignment with the guide hole on the main deck. (See Fig.2-2-3i.)
(8) Install so that the notch on the periphery of the relay gear is aligned with the notch of the main deck and that hole A of the relay gear is aligned with the hole A of the limit gear and that hole B of the relay gear is aligned with the hole B of the drive gear. (See Fig.2-2-3i.)
(9) Install the door opener, opener guide, spring(A) and cassette housing bracket and fasten the two slit washers.

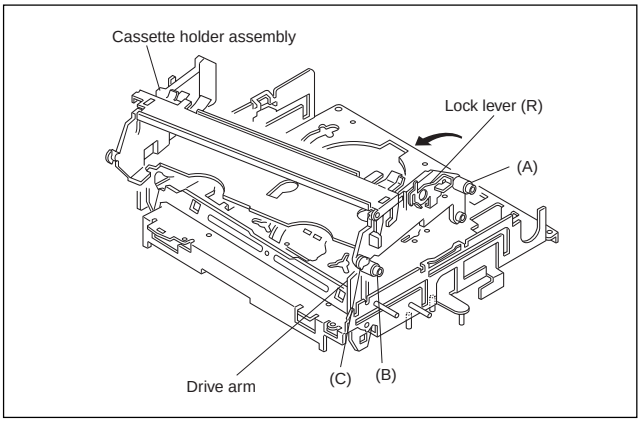


Fig. 2-2-3g

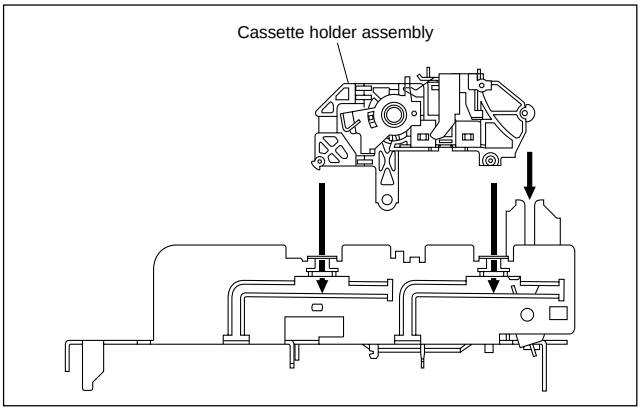


Fig. 2-2-3h

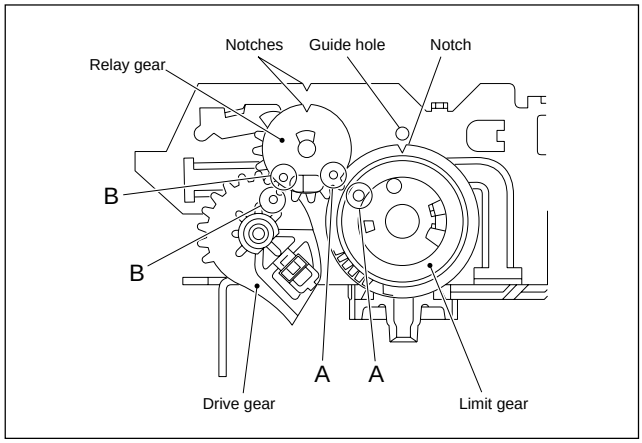


Fig. 2-2-3i

2.2.4 Pinch roller arm assembly

1. How to remove

(1) Remove the spring from the hook of the press lever assembly.
(2) Remove the pinch roller arm assembly together with the pinch roller sheet 3 by pulling it up.

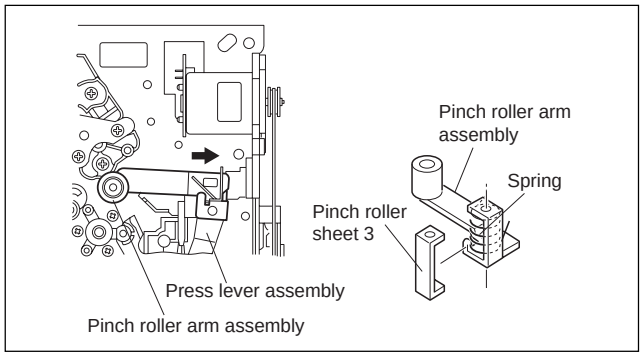


Fig. 2-2-4a

2.2.5 Guide arm assembly and press lever assembly

1. How to remove

(1) Remove the spring and expand the lug of the lid guide in the arrow-indicated direction. Then remove the guide arm assembly by pulling it up.
(2) Remove the press lever assembly by pulling it up. (See Fig.2-2-5a.)

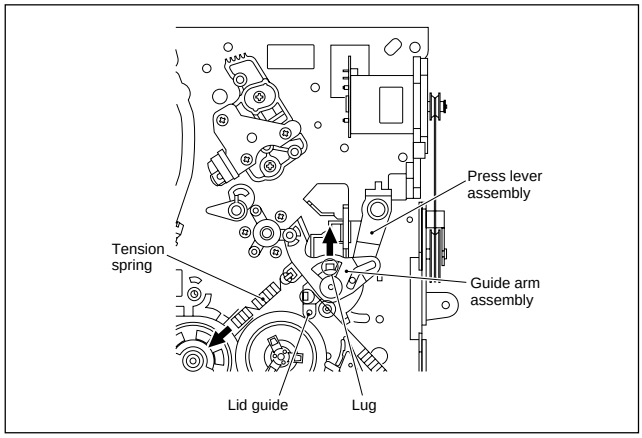


Fig. 2-2-5a

2.2.6 A/C head

1. How to remove

(1) Remove the two screws (A) and remove the A/C head together with the head base.
(2) When replacing only the A/C head, remove the three screws (B) while controlling the compression spring.

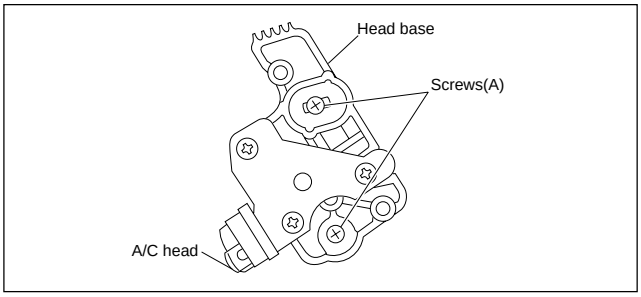


Fig. 2-2-6a

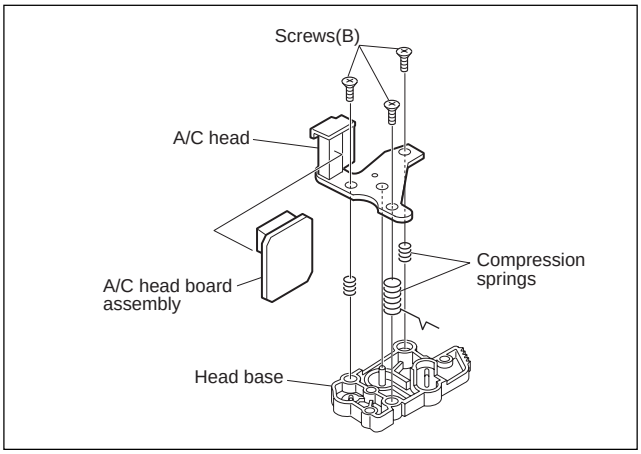


Fig. 2-2-6b

2. How to install

(1) To make the post-installation adjustment easier, set the temporary level as indicated in Fig.2-2-6c. Also make sure that the screw center (centre) is brought into alignment with the center (centre) position of the slot.

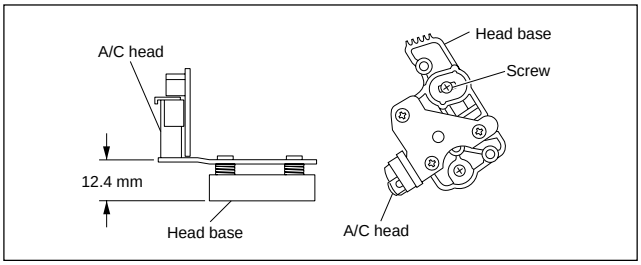


Fig. 2-2-6c

2.2.7 Loading motor

1. How to remove

(1) Remove the belt wound around the worm gear.
(2) Open the two lugs of the motor guide and remove the loading motor, loading motor board assembly and motor guide altogether by pulling them up.
(3) When replacing the loading motor board assembly, take care with the orientation of the loading motor. (Install so that the loading motor label faces upward.)
(4) When the motor pulley has been replaced, choose the fitting dimension as indicated in Fig.2-2-7a.

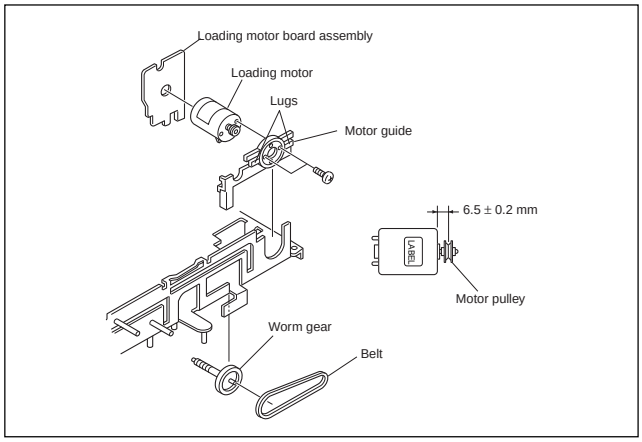


Fig. 2-2-7a

2.2.8 Capstan motor

1. How to remove

(1) Remove the belt (capstan) on the mechanism assembly back side.
(2) Remove the three screws (A) and remove the capstan motor.

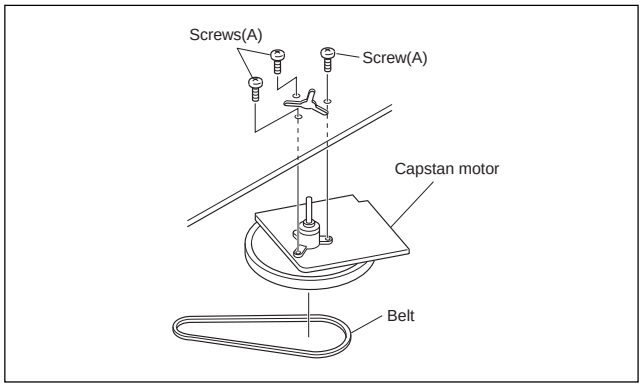


Fig. 2-2-8a

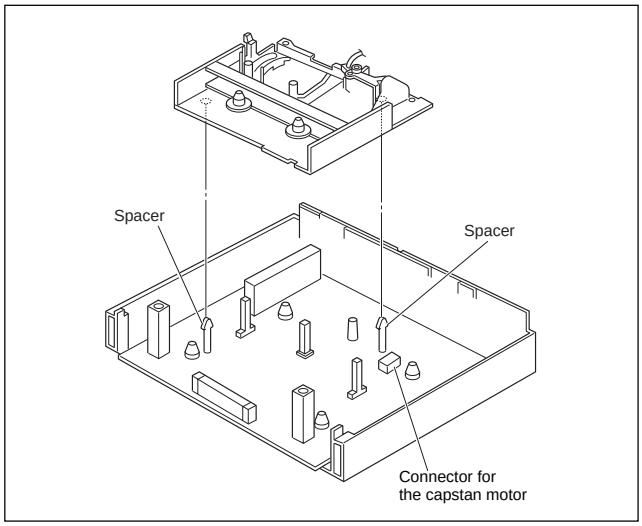


Fig. 2-2-8b

2. How to install (Centering the mounting position)

When the capstan motor has once been removed and then reinstalled out of the initial correct position in the rotational direction, the capstan motor current may be unstable during operation in high or low temperatures. This may result in greater Wow & Flutter and occasionally in power breakdown because of current over - load. Install the capstan motor while following the procedure given below.
(The capstan motor is centrally located when the unit is shipped from the factory.)

(1) Provisionally tighten the three screws (A) securing the capstan motor.
(2) Install the mechanism assembly to which the capstan motor is provisionally fastened on the bottom chassis which incorporates the Main board assembly. (No need to tighten the screws for mounting the mechanism.)
Make sure that all the connectors for the mechanism assembly and the Main board assembly are correctly installed as indicated in Fig. 2-2-8b.
(3) Making sure that the connector for the capstan motor is correctly mounted, and securely tighten the three screws (A).

Note:

- ***When the capstan motor has been replaced with a new one, perform recording in the EP(or LP) mode for at least 2 minutes at normal temperatures immediately before starting the FF/REW or SEARCH operations (Aging).***

2.2.9 Pole base assembly (supply or take-up side)

1. How to remove

(1) Remove the UV catcher 2 on the removal side by loosening the screw (A).
(2) Remove the pole base assembly on the supply side from the mechanism assembly by loosening the screw (B) on the mechanism assembly back side and sliding the pole base assembly toward the UV catcher 2.
(3) As for the pole base assembly on the take-up side, turn the pulley of the loading motor to lower the cassette holder because the screw (B) is hidden under the control plate. (See the “Procedures for Lowering the Cassette holder assembly” of 1.3 DISASSEMBLY/ASSEMBLY METHOD.) Further turn the motor pulley to move the cassette holder until the screw (B) is no longer under the control plate (in the half-loading position). Then remove it as done for the supply side by removing the screw (B).

Note:

- ***After reinstalling the Pole base assembly and the UV catcher2, be sure to perform compatibility adjustment.***

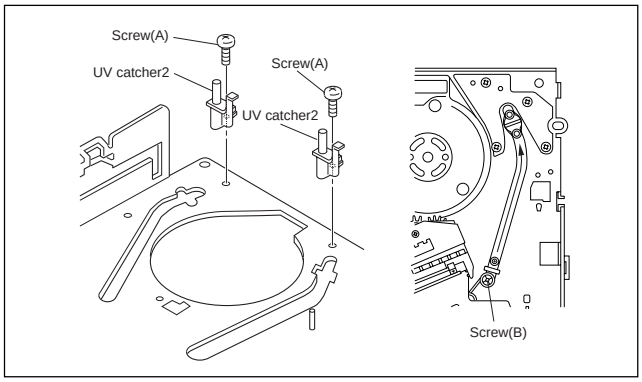


Fig. 2-2-9a

2.2.10 Rotary encoder

1. How to remove

(1) Remove the screw (A) and remove the rotary encoder by pulling it up. (See Fig. 2-2-10a.)

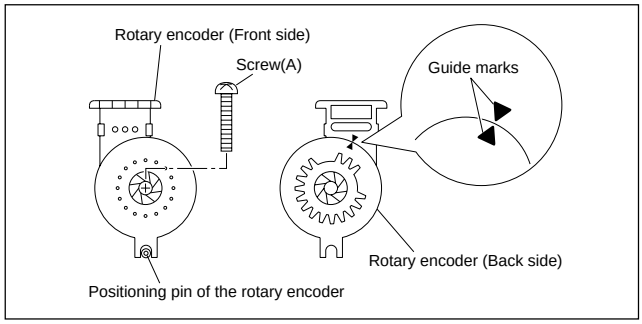


Fig. 2-2-10a

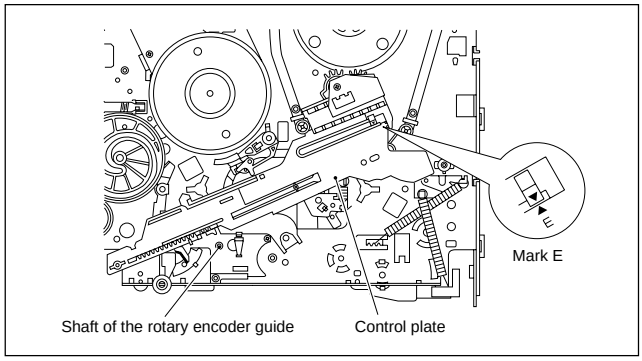


Fig. 2-2-10b

2. How to install (Phase matching)

(1) Make sure that the mark E of the control plate is in alignment with the mark ▼ of the loading arm gear shaft and bring the guide marks on the rotary encoder into alignment as indicated in Fig.2-2-10a. (See Fig. 2-2-10a and Fig. 2-2-10b.)

(2) Turn over the rotary encoder with its guide marks kept in alignment and install it by fitting on the shaft of the rotary encoder guide and the positioning pin.

(3) Tighten the screw (A) to complete the installation.

2.2.11 Clutch unit

(1) Remove the belt wound around the capstan motor and the clutch unit.

(2) Remove the slit washer and remove the clutch unit.

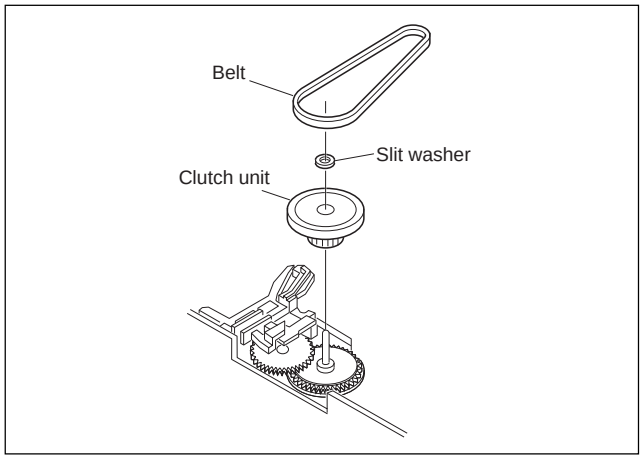


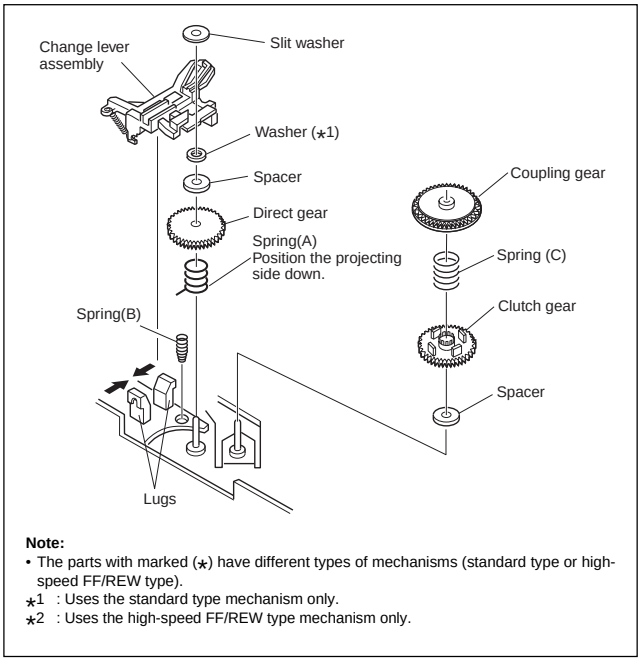
Fig. 2-2-11a

2.2.12 Change lever assembly, direct gear, clutch gear and coupling gear

1. How to remove

(1) Release the two lugs of the rotary encoder guide in the arrow-indicated direction and remove the change lever assembly.

(2) Remove the slit washer retaining the direct gear and remove the latter.
Take care so as not to lose the washer and spring. (See Fig.2-2-12a.)



Note:
- The parts with marked (*) have different types of mechanisms (standard type or high-speed FF/REW type).

*1 : Uses the standard type mechanism only.
*2 : Uses the high-speed FF/REW type mechanism only.

Fig. 2-2-12a

2. How to install

(1) Install the clutch gear, spring (A), spring (C), direct gear, spacer and others to the individual shafts of the main deck, and finally the slit washer. (See Fig.2-2-12a.)

(2) Let the spring (B) drops into the rotary encoder guide hole and install the change lever assembly.(Take care not to mistake a direction of the spring.) The point is to slightly lift the coupling gear and catch it from the both sides with the assembly. (See Fig.2-2-12b.)

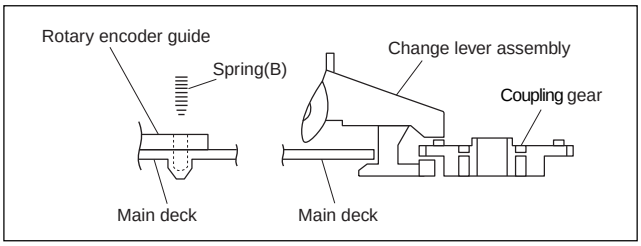


Fig. 2-2-12b

2.2.13 Link lever

1. How to remove

(1) Remove the two slit washers.
(2) Remove the link lever by lifting it from the shaft retained by the slit washers. Then swing the link lever counterclockwise and remove it from the locking section of the control plate.

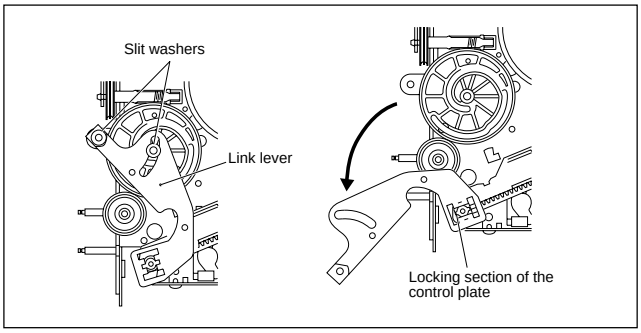


Fig. 2-2-13a

2. How to install (Phase matching)

(1) Slide the control plate so that its mark E is aligned with the mark ▼ on the loading arm gear shaft. (See Fig.2-2-13b.)
(2) Rotate the worm gear until the guide hole of the control cam is aligned exactly with the guide hole of the main deck. (See Fig.2-2-13c.)
(3) Insert the link lever into the locking section of the control plate. (See Fig.2-2-13a.)
(4) Rotate the link lever clockwise so that it is installed on the shafts in the center (centre) and on the left of the control cam.
(5) Fasten the slit washers at these two points.

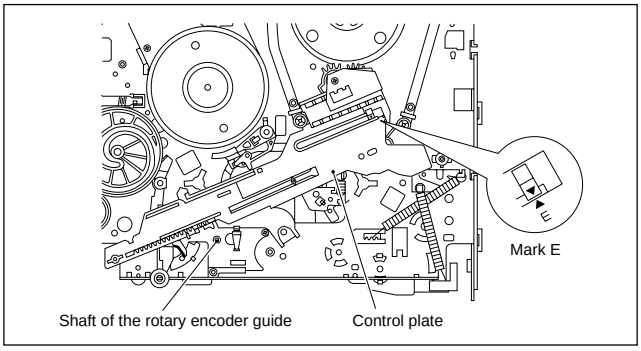


Fig. 2-2-13b

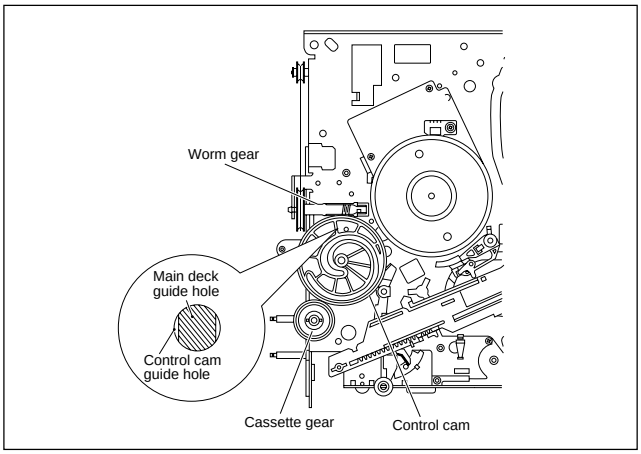


Fig. 2-2-13c

2.2.14 Cassette gear, control cam and worm gear

1. How to remove

(1) Remove the control cam by lifting it.
(2) Open the two lugs of the cassette gear outward and pull the latter off.
(3) Remove the belt wound around the worm gear and the loading motor.
(4) Open the lug of the lid guide outward and remove the worm gear.

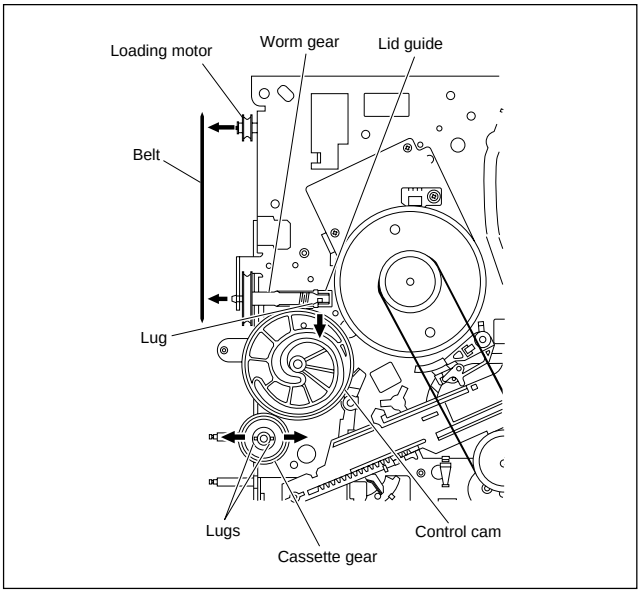


Fig. 2-2-14a

2.2.15 Control plate

1. How to remove

(1) Remove the screw (A) retaining the control bracket 1 and remove the latter.
(2) Slide the control plate as indicated by the arrow and remove the control plate. (See Fig.2-2-15a.)

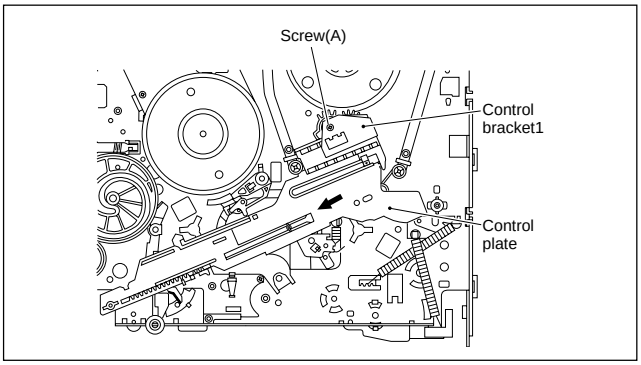


Fig. 2-2-15a

2. How to install (Phase matching)

(1) Adjust the position of the idler arm assembly pin as indicated in Fig.2-2-15b (to the left of center (centre) of the R section).
(2) Bring the guide hole of the take-up lever into alignment with the hole at the control plate guide and fix the position by inserting a 1.5 mm hexagonal wrench.

(3) Install the control plate so that the section A of the loading arm gear shaft fits into the hole (A) of the control plate, the section B of the control plate guide into the hole (B), and the control plate comes under the section C of the rotary encoder guide and the section D of the loading arm gear shaft while press-fit the pole base assmebly (supply side) as indicated by the arrow. It is important that the tension arm assembly shaft is positioned closer toward you than the control plate. (See Fig.2-2-15c.)
(4) Make sure that the mark E of the control plate is in alignment with the mark ▼ of the loading arm gear shaft. (See Fig.2-2-15c.)
(5) Pull off the hexagonal wrench for positioning.

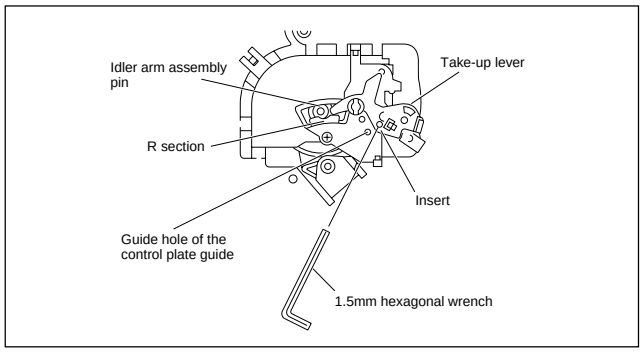


Fig. 2-2-15b

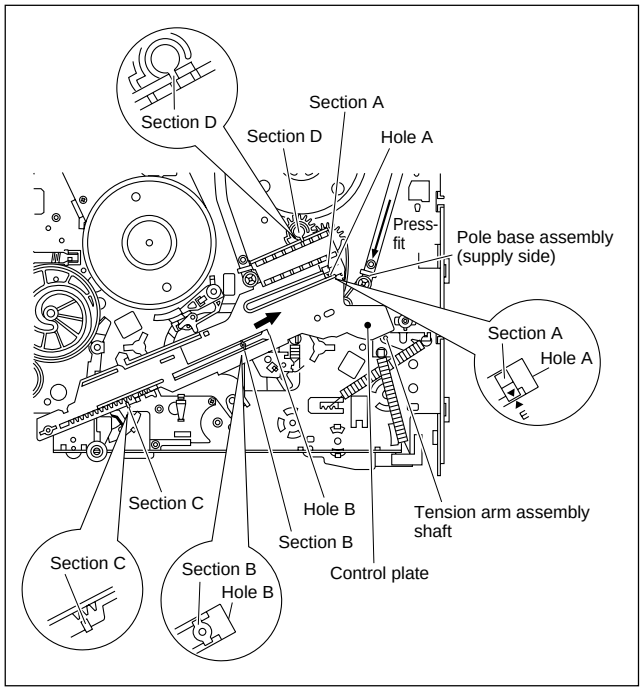


Fig. 2-2-15c

2.2.16 Loading arm gear (supply or take-up side) and loading arm gear shaft

1. How to remove

(1) Remove the loading arm gear (supply side) by loosening the screw (A). (See Fig. 2-2-16a.)
(2) Remove the screw (B) and remove the torsion arm from the pole base assembly (take-up side). (See Fig.2-2-16a.)
(3) Turn the loading arm gear (take-up side) clockwise so that the notch of the loading arm gear (take-up side) is in alignment with the projection of the loading arm gear shaft and lift it.
Likewise, turn the loading arm counterclockwise so that the notch is in alignment with the projection and remove the loading arm gear (take-up side). (See Fig.2-2-16a and Fig. 2-2-16b.)
(4) When removing the loading arm gear shaft, be sure of first removing the screw retaining the drum assembly (on the back side of the loading arm gear shaft). Then remove the screw (C) and remove the loading arm gear shaft by sliding it.

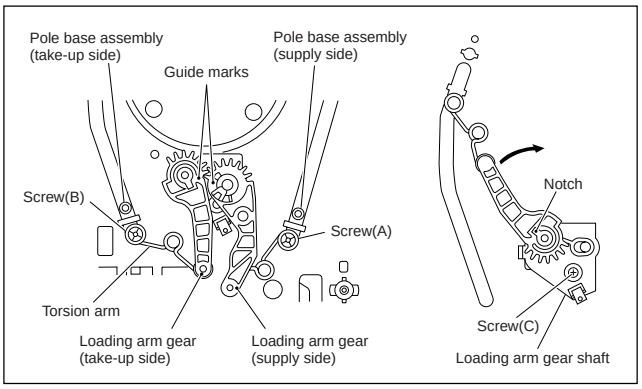


Fig. 2-2-16a

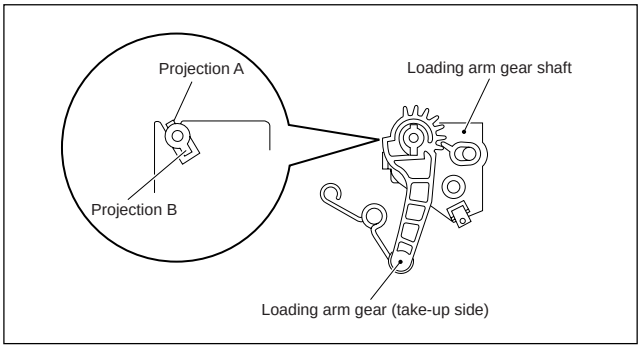


Fig. 2-2-16b

2. How to install

(1) Align the notch of the loading arm gear (take-up side) to the projection B of the loading arm gear shaft and slip it over. Then rotate it clockwise for alignment with the projection A and slip it down to the bottom. (See Fig.2-2-16b.)
(2) Then turn the loading arm gear (take-up side) counterclockwise. Hang the torsion arm on the pole base assembly (take-up side) and tighten the screw (B).
(3) Install the loading arm gear (supply side) so that the guide mark of the loading arm gear (take-up side) is in alignment with the guide mark of the loading arm gear (supply side). Then hang the torsion arm on the pole base assembly (supply side) and tighten the screw (A). (See Fig.2-2-16a.)

2.2.17 Take-up lever, take-up head and control plate guide

(1) Remove the spring of the take-up lever from the main deck.
(2) Remove the lug (A) of the take-up lever from the main deck and pull out the take-up lever and the take-up head together.
(3) Remove the screw (A).
(4) Align the idler arm assembly pin in the center (centre) of the R section of the control plate guide, remove the control plate guide lugs (B) and (C) from the main deck, and remove the control plate guide.

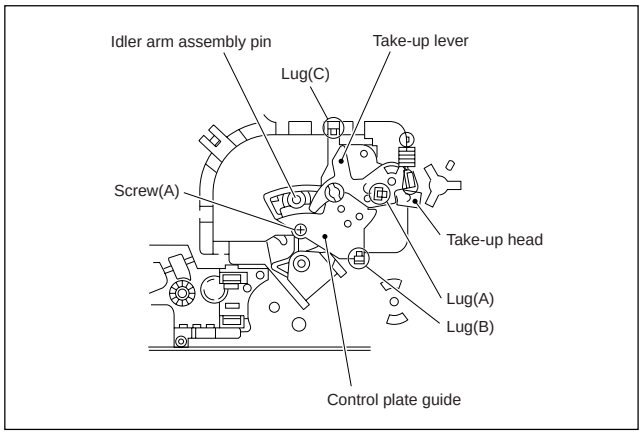


Fig. 2-2-17a

2.2.18 Capstan brake assembly

1. How to remove

(1) Move the lug (A) of the capstan brake assembly in the arrow-indicated direction so that it comes into alignment with the notch of the main deck. (See Fig. 2-2-18a.)
(2) Remove the lug (B) of the capstan brake assembly from the main deck and remove the capstan brake assembly.

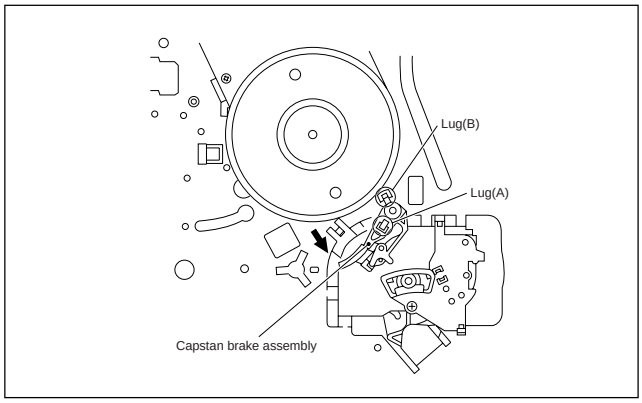


Fig. 2-2-18a

2.2.19 Sub brake assembly (take-up side)

1. How to remove

(1) Remove the spring attached to the lid guide and sub brake assembly (take-up side).
(2) Bring the lug (A) of the sub brake assembly (take-up side) into alignment with the notch of the main deck.
(3) Remove the lugs (B) and (C) of the sub brake assembly (take-up side) from the main deck and remove the sub brake assembly (take-up side).

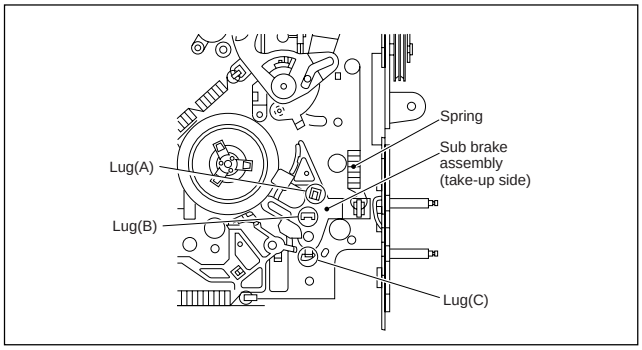


Fig. 2-2-19a

2.2.20 Main brake assembly (take-up side), reel disk (take-up side) and main brake assembly (supply side)

1. How to remove

(1) Move the main brake assembly (take-up side) in the arrow-indicated direction and remove the reel disk (take-up side).
(2) Remove the spring attached to the main brake assembly.
(3) Remove the lug (A) of the main brake assembly (take-up side) and pull out the lug (B) after bringing it into alignment with the main deck notch.
(4) Remove the lugs (C), (D) and (E) of the main brake assembly (supply side) from the main deck and pull them off. (See Fig.2-2-20a.)
(5) When installing the main brake assembly (take-up side), slide the brake lever in the direction as indicated by the arrow to prevent it from hitting the projection of the main brake assembly (take-up side). (See Fig.2-2-20b.)

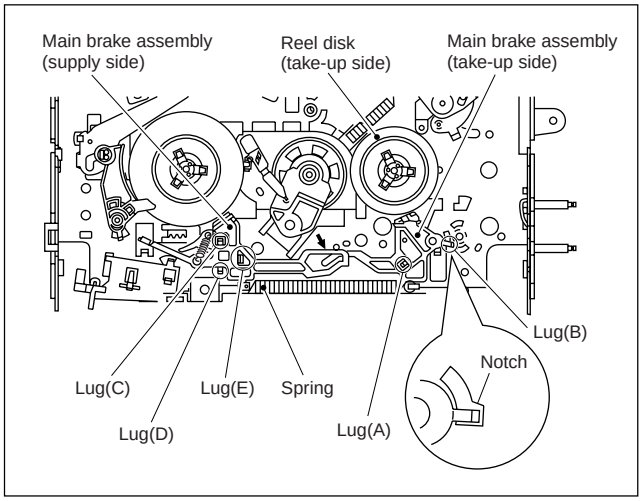


Fig. 2-2-20a

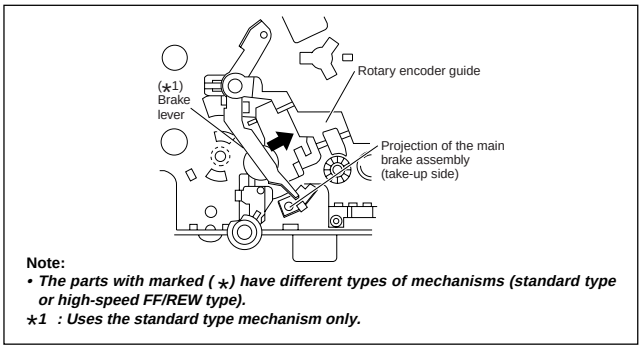

(★1) Brake lever
Rotary encoder guide
Projection of the main brake assembly (take-up side)
Note:
• The parts with marked (★) have different types of mechanisms (standard type or high-speed FF/REW type).
★1 : Uses the standard type mechanism only.

Fig. 2-2-20b

2.2.21 Tension brake assembly, reel disk (supply side) and tension arm assembly

1. How to remove

(1) Remove the three lugs of the tension brake assembly from the main deck and pull them off.
(2) Remove the reel disk (supply side) by loosening in the arrow-indicated direction the main brake assembly (supply side).
(3) Remove the tension spring on the back of the main deck. Then release the lug of the tension arm bearing in the arrow-indicated direction and draw out the tension arm assembly. (See Fig. 2-2-21a.)

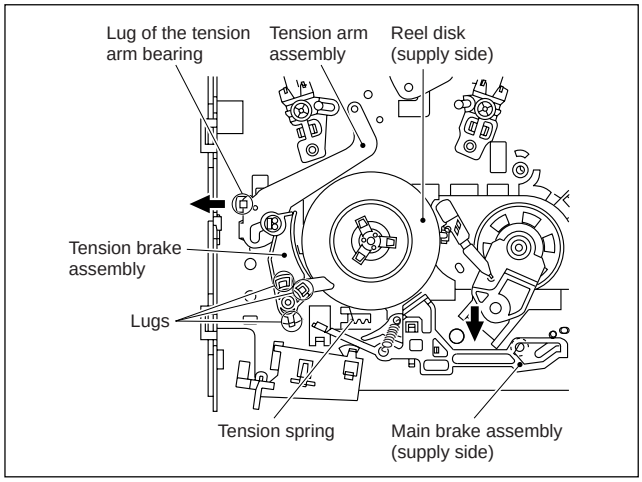


Fig. 2-2-21a

2.2.22 Idler lever, idler arm assembly

1. How to remove

(1) Remove the lug of the idler lever from the main deck and remove the hook fitted in the idler arm assembly hole by lifting it.
(2) Remove the slit washer and pull out the idler arm assembly.

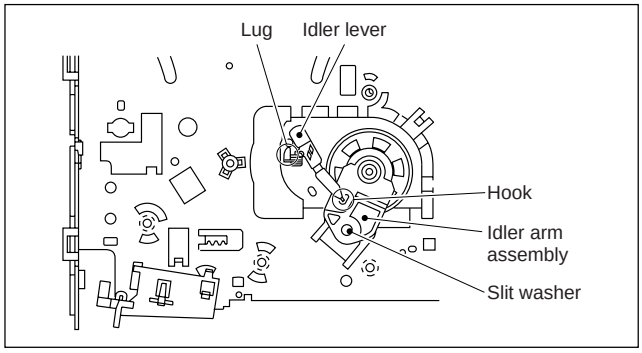


Fig. 2-2-22a

2.2.23 Stator assembly

(1) Remove the flat cable.
(2) Remove the two screws (A), (B) and remove the lug wire.
(3) Remove the stator assembly by lifting in the arrow-indicated direction. (Take care that the brush spring does not jump out.)

Notes:

- ***Be careful not to lose the brush and spring.***
- ***There are some models that do not use the lug wire. Refer to the parts list for these models.***
- ***When tightening the screw (B), place the caulked part of the lug terminal near to the shaft of the drum and then tighten it.***
- ***After installation, be sure to perform the switching point adjustment according to the electrical adjustment procedure.***

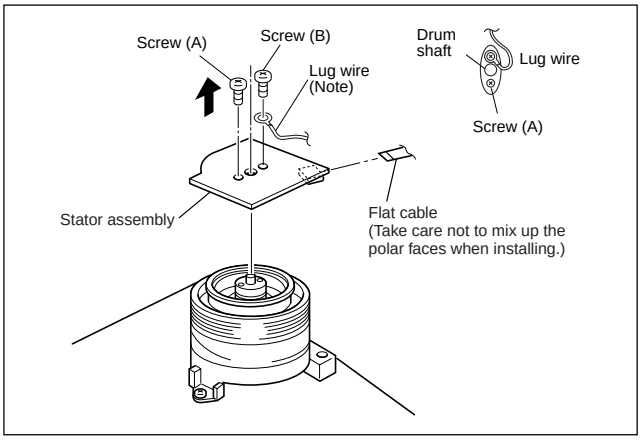


Fig. 2-2-23a

2.2.24 Rotor assembly

1. How to remove

(1) Remove the stator assembly.
(2) Remove the two screws (B) and remove the rotor assembly.

2. How to install

(1) Match the phases of the upper drum assembly and the rotor assembly as indicated in Fig.2-2-24a.
(2) Place the upper drum assembly hole (a) over the rotor assembly holes (b) (with three holes to be aligned) and tighten the two screws (B). (See Fig.2-2-24a.)

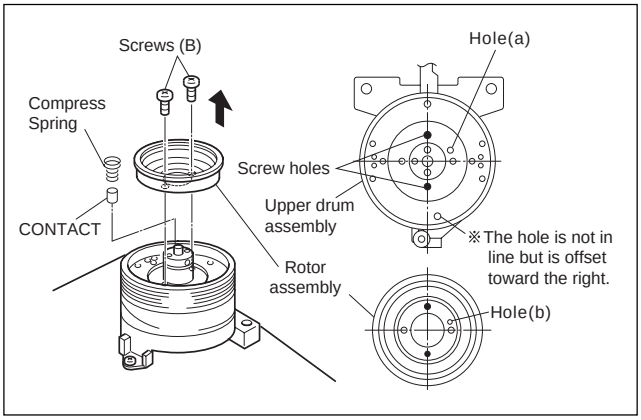


Fig. 2-2-24a

2.3 Compatibility adjustment

Notes:

- ***Although compatibility adjustment is very important, it is not necessary to perform this as part of the normal servicing work. It will be required when you have replaced the A/C head, drum assembly or any part of the tape transport system.***
- ***To avoid any damage to the alignment tape while performing the compatibility adjustment, get a separate cassette tape (for recording and play back) ready to be used for checking the initial tape running behavior.***
- ***Unless otherwise specified, all measuring points and adjustment parts are located on the Main board.***
- ***When using the Jig RCU, it is required to set the VCR to the Jig RCU mode (the mode in which codes from the Jig RCU can be received). (See SECTION 1 DISASSEMBLY.)***

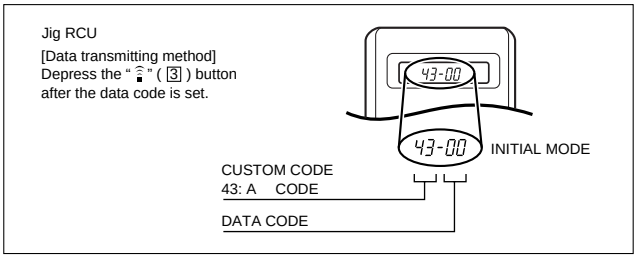


Fig. 2-3a Jig RCU [PTU94023B]

2.3.1 FM waveform linearity

Signal	(A1) (A2)	• Alignment tape(SP, stairstep, PAL) [MHPE] • Alignment tape(LP, stairstep, PAL) [MHPE-L]
Mode	(B)	• PB
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• TP106 (PB. FM)
External trigger	(E)	• TP111 (D.FF)
Adjustment part	(F)	• Guide roller [Mechanism assembly]
Specified value	(G)	• Flat V.PB FM waveform
Adjustment tool	(H)	• Roller driver [PTU94002]

(1) Play back the alignment tape (A1).
(2) Apply the external trigger signal to D.FF (E), to observe the V.PB FM waveform at the measuring point (D).
(3) Set the VCR to the manual tracking mode.
(4) Make sure that there is no significant level drop of the V.PB FM waveform caused by the tracking operation, with its generally parallel and linear variation ensured. Perform the following adjustments when required. (See Fig. 2-3-1a.)
(5) Reduce the V.PB FM waveform by the tracking operation. If a drop in level is found on the left side, turn the guide roller of the pole base assembly (supply side) with the roller driver to make the V.PB FM waveform linear.
If a drop in level is on the right side, likewise turn the guide roller of the pole base assembly (take-up side) with the roller driver to make it linear. (See Fig. 2-3-1c.)
(6) Make sure that the V.PB FM waveform varies in parallel and linearly with the tracking operation again. When required, perform fine-adjustment of the guide roller of the pole base assembly (supply or take-up side).
(7) Unload the cassette tape once, play back the alignment tape (A1) again and confirm the V.PB FM waveform.
(8) After adjustment, confirm that the tape wrinkling does not occur at the roller upper or lower limits. (See Fig. 2-3-1d.)

[Perform adjustment step (9) only for the models equipped with SP mode and EP (or LP) mode.]

(9) Repeat steps (1) to (8) by using the alignment tape (A2).

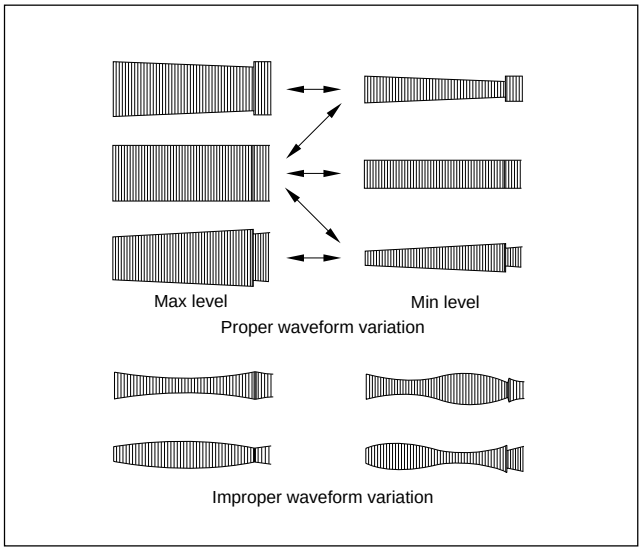


Fig. 2-3-1a

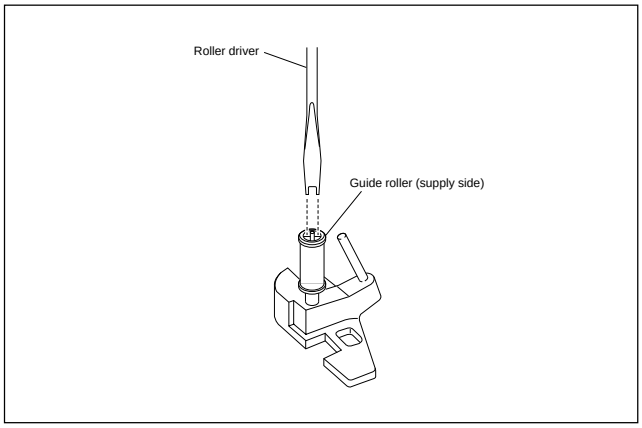


Fig. 2-3-1b

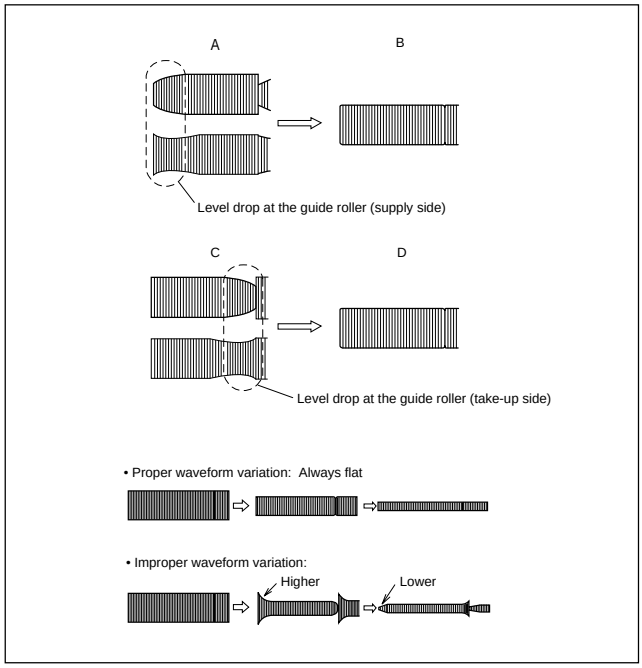


Fig. 2-3-1c

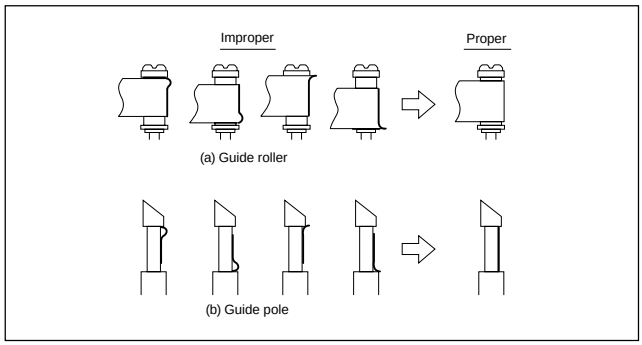


Fig. 2-3-1d

2.3.2 Height and tilt of the A/C head

Note:

- ***Set a temporary level of the height of the A/C head in advance to make the adjustment easier after the A/C head has been replaced. (See Fig.2-2-6c.)***

Signal	(A)	• Alignment tape(SP, stairstep, PAL) [MHPE]
Mode	(B)	• PB
Equipment	(C)	• Oscilloscope
Measuring point	(D1) (D2)	• AUDIO OUT terminal • TP4001 (CTL. P)
External trigger	(E)	• TP111 (D.FF)
Adjustment part	(F)	• A/C head [Mechanism assembly]
Specified value	(G)	• Maximum waveform

(1) Play back the alignment tape (A).
(2) Apply the external trigger signal to D.FF (E), to observe the AUDIO OUT waveform and Control pulse waveform at the measuring points (D1) and (D2) in the ALT mode.
(3) Set the VCR to the manual tracking mode.
(4) Adjust the AUDIO OUT waveform and Control pulse waveform by turning the screws (1), (2) and (3) little by little until both waveforms reach maximum. The screw (1) and (3) are for adjustment of tilt and the screw (2) for azimuth.

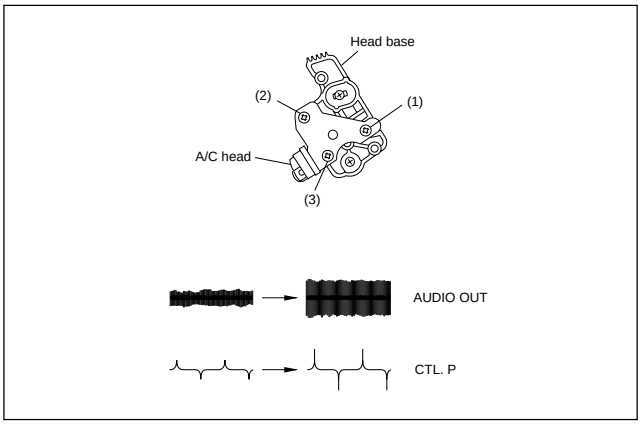


Fig. 2-3-2a

2.3.3 A/C head phase (X-value)

Signal	(A1)	• Alignment tape(SP, stairstep, PAL) [MHPE]
Mode	(B)	• PB
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• TP106 (PB. FM)
External trigger	(E)	• TP111 (D.FF)
Adjustment part	(F)	• A/C head base [Mechanism assembly]
Specified value	(G)	• Maximum V.PB FM waveform
Adjustment tool	(H)	• A/C head positioning tool [PTU94010]

(1) Play back the alignment tape (A1).
(2) Apply the external trigger signal to D.FF (E), to observe the V.PB FM waveform at the measuring point (D).
(3) Set the VCR to the manual tracking mode.
(4) Loosen the screws (4) and (5), then set the A/C head positioning tool to the innermost projected part of the A/C head. (See Fig. 2-3-3a.)
(5) Turn the A/C head positioning tool fully toward the capstan. Then turn it back gradually toward the drum and stop on the second peak point position of the V.PB FM waveform output level. Then tighten the screws (4) and (5).
(6) Perform the tracking operation and make sure that the V.PB FM waveform is at its maximum.
If it is not at maximum, loosen the screws (4) and (5), and turn the A/C head positioning tool to bring the A/C head to a position, around where the waveform reaches its maximum for the first time. Then tighten the screws (4) and (5).

[Perform adjustment steps (7) to (10) only for 2 Head models equipped with LP mode.]

(7) Then play back the alignment tape (A2).
(8) Set the VCR to the manual tracking mode.
(9) Perform the tracking operation and make sure that the V.PB FM waveform is at its maximum.
(10) If it is not at maximum, loosen the screws (4) and (5), and turn the A/C head positioning tool to bring the A/C head to a position, around where the waveform reaches its maximum for the first time. Then tighten the screws (4) and (5).

Note:

- ***After adjusting, always perform the confirmation and re-adjustment of the item 2.3.4.***

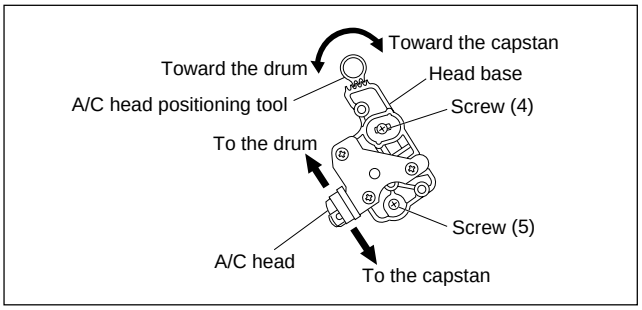


Fig. 2-3-3a

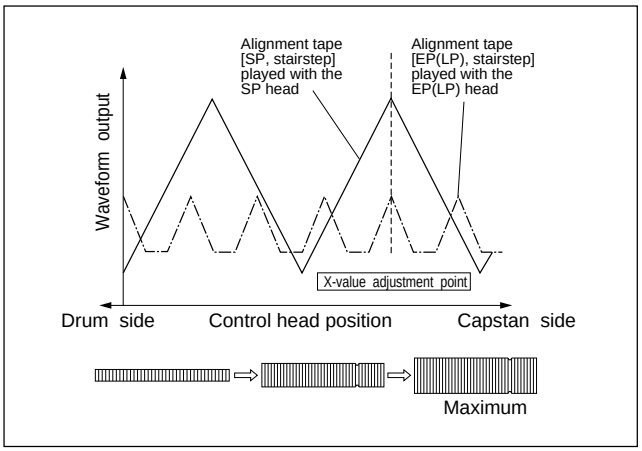


Fig. 2-3-3b

2.3.4 Standard tracking preset

Signal	(A)	• Alignment tape(LP, stairstep, PAL) [MHPE-L]
Mode	(B)	• PB → Auto adjust
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• TP106 (PB. FM)
External trigger	(E)	• TP111 (D.FF)
Adjustment part	(F)	• Jig RCU: Code “50”
Specified value	(G)	• STOP mode (Maximum V.PB FM waveform)
Adjustment tool	(H)	• Jig RCU [PTU94023B]

(1) Play back the alignment tape (A).
(2) Apply the external trigger signal to D.FF (E), to observe the V.PB FM waveform at the measuring point (D).
(3) Confirm that the automatic tracking operation is completed.
(4) Set the VCR to the Auto adjust mode by transmitting the code (F) twice from the Jig RCU. When the VCR enters the stop mode, the adjustment is completed.
(5) If the VCR enters the eject mode, perform adjustment for the audio control head phase (X-value) again.

2.3.5 Tension pole position

Signal	(A)	• Back tension cassette gauge [PUJ48076-2]
Mode	(B)	• PB
Adjustment part	(F)	• Adjust pin [Mechansim assembly]
Specified value	(G)	• 25 - 51 gf•cm ($2.45 - 5 \times 10^{-3}$ Nm]

(1) Play back the back tension cassette gauge (A).
(2) Check that the indicated value on the left side gauge is within the specified value (G).
(3) If the indicated value is not within the specified value (G), perform the adjustment in a following procedure.
  1) Set the VCR to the mechanism service mode. (See SECTION 1 DISASSEMBLY.)
  2) Set the VCR to the play back mode and adjust by turning adjustment pin to align the tension arm assembly edge with the main deck hole (A) on the right edge marker. (See Fig. 2-3-5a)

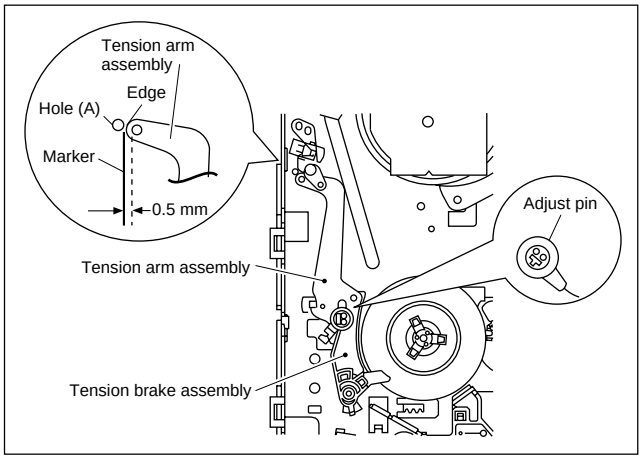
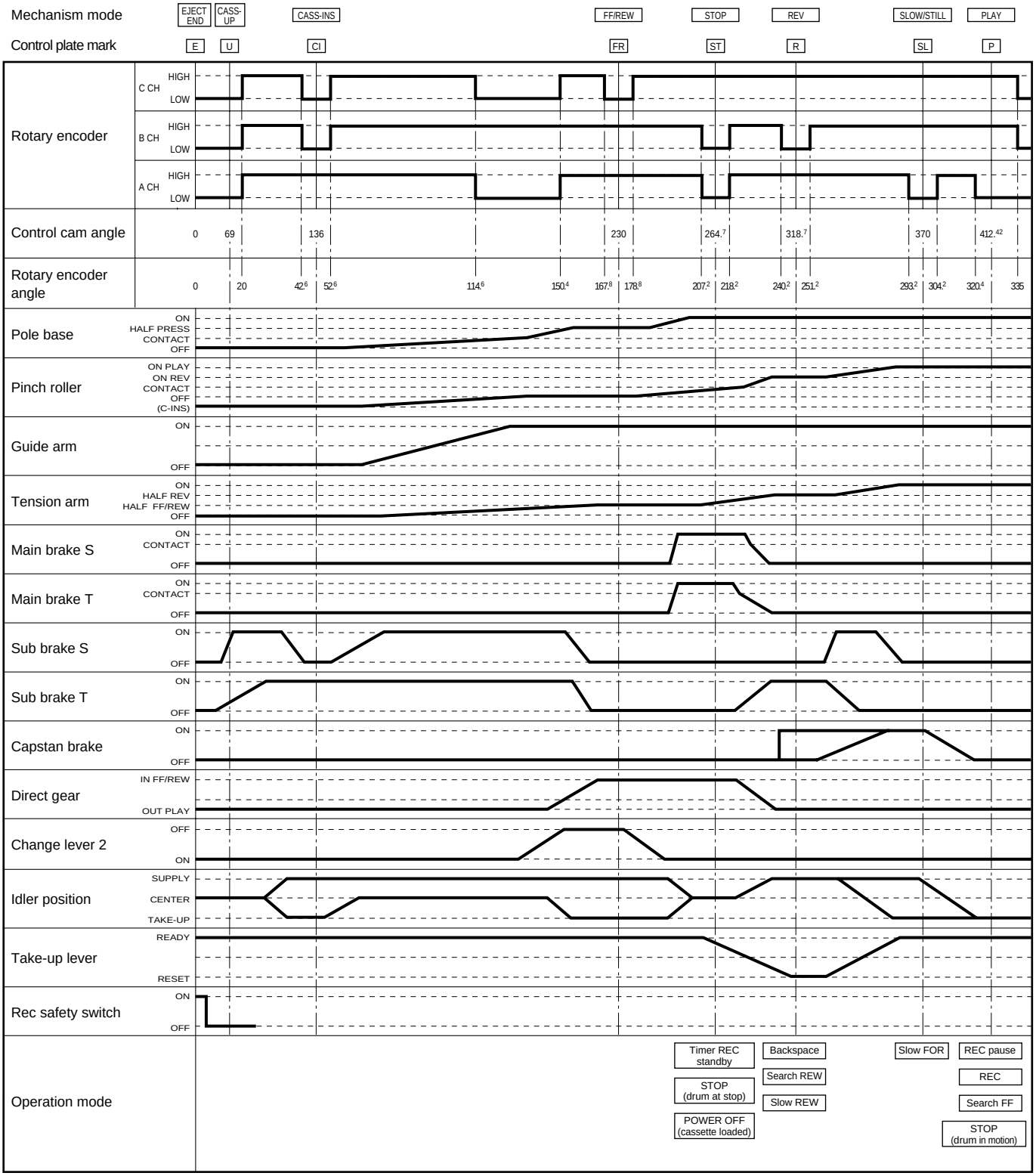


Fig. 2-3-5a

Mechanism Timing Chart



SECTION 3
ELECTRICAL ADJUSTMENT

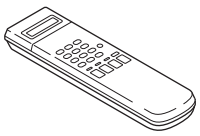
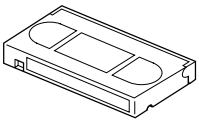
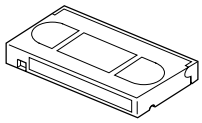
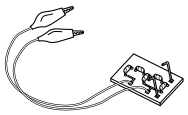
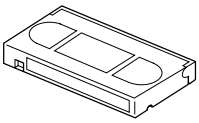
3.1 Precaution

The following adjustment procedures are not only necessary after replacement of consumable mechanical parts or board assemblies, but are also provided as references to be referred to when servicing the electrical circuitry.
In case of trouble with the electrical circuitry, always begin a service by identifying the defective points by using the measuring instruments as described in the following electrical adjustment procedures. After this, proceed to the repair, replacement and/or adjustment. If the required measuring instruments are not available in the field, do not change the adjustment parts (variable resistor, etc.) carelessly.

3.1.1 Required test equipments

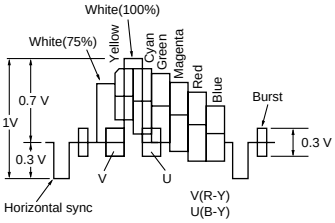
- Color (colour) television or monitor
- Oscilloscope: wide-band, dual-trace, triggered delayed sweep
- Frequency counter
- Audio level meter
- Signal generator: RF / IF sweep / marker
- Signal generator: stairstep, color (colour) bar [PAL/NTSC]
- Recording tape (VHS/SVHS)
- Digit-key remote controller (provided)

3.1.2 Required adjustment tools

Jig RCU PTU94023B	Alignment tape (SP, stairstep, PAL) MHPE	Alignment tape (LP, stairstep, PAL) MHPE-L
		
LPF PTU93006	Alignment tape (S-VHS, SP/LP, color (colour) bar) MH-2H	
		

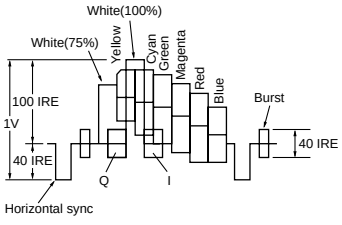
3.1.3 Color (colour) bar signal,Color (colour) bar pattern

• Color(colour) bar signal [PAL]

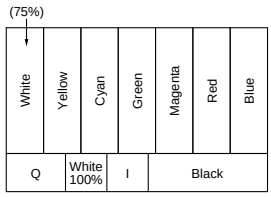


• Color(colour) bar pattern [PAL]

• Color(colour) bar signal [NTSC]



• Color(colour) bar pattern [NTSC]



3.1.4 Switch settings and standard precautions

The SW settings of the VCR and the standard precautions for the electrical adjustments are as follows.

- ***When using the Jig RCU, it is required to set the VCR to the Jig RCU mode (the mode in which codes from the Jig RCU can be received). (See SECTION 1 DISASSEMBLY.)***

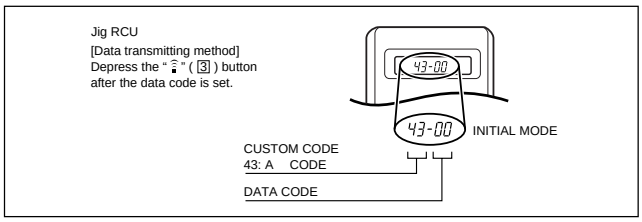


Fig. 3-1-4a Jig RCU [PTU94023B]

- ***Set the switches as shown below unless otherwise specified on the relevant adjustment chart. The switches that are not listed below can be set as desired.***
  If the VCR is not equipped with the functions detailed below, setup is not required.

AUTO PICTURE/VIDEO CALIBRATION/ B.E.S.T./D.S.P.C.	OFF
PICTURE CONTROL/SMART PICTURE	NORMAL/NATURAL
VIDEO STABILIZER	OFF
TBC	ON
Digital 3R	ON
VIDEO NAVIGATION/TAPE MANAGER	OFF

- ***If there is a reference to a signal input methed in the signal column of the adjustment chart, "Ext. S-input" means the Y/C separated video signal and "Ext. input" means the composite video signal input.***
- ***Unless otherwise specified, all measuring points and adjustment parts are located on the Main board.***

3.1.5 EVR Adjustment

Some of the electrical adjustments require the adjustment performed by the EVR system. The main unit have EEPROMs for storing the EVR adjustment data and user setups.

Notes:

- ***In the EVR adjustment mode, the value is varied with the channel buttons (+, –). The adjusted data is stored when the setting mode changes (from PB to STOP, when the tape speed is changed, etc.). Take care to identify the current mode of each adjustment item when making an adjustment.***
- ***When changing the address setting in the EVR adjustment mode, use the Jig RCU or the remote controller having numeric keypad with which a numeric code can be directly input.***
  The remote control code of the Jig RCU corresponds to each of the digit keys on the remote controller as follows.

Digit-key	0	1	2	3	4	5	6	7	8	9
Code	20	21	22	23	24	25	26	27	28	29

- ***As the counter indication and remaining tape indication are not displayed FDP during the EVR adjustment mode, check them on the TV monitor screen.***
- ***When performing the EVR adjustment, confirm that the FDP indication is changed to the EVR mode, as shown below.***

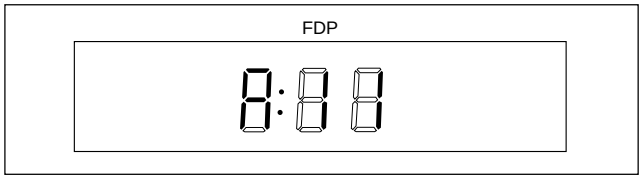


Fig. 3-1-5a EVR mode

3.2 Servo circuit

3.2.1 Switching point

Signal	(A1) (A2)	• Stairstep signal • Alignment tape (SP,stairstep,PAL) [MHPE]
Mode	(B)	• PB
Equipment	(C)	• Oscilloscope
Measuring point	(D1) (D2)	• VIDEO OUT terminal (75Ω terminated) • TP106 (PB. FM)
External trigger	(E)	• TP111 (D.FF)/slope : –
Adjustment part	(F)	• Jig code “5A”
Specified value	(G)	• 7.5 ± 0.5H
Adjustment tool	(H)	• Jig RCU [PTU94023B]

(1) Play back the signal (A1) of the alignment tape (A2).
(2) Apply the external trigger signal to D.FF (E) to observe the VIDEO OUT waveform and V.PB FM waveform at the measuring points (D1) and (D2).
(3) Set the VCR to the manual tracking mode.
(4) Adjust tracking so that the V.PB FM waveform becomes maximum.
(5) Set the VCR to the Auto adjust mode by transmitting the code (F) from the Jig RCU. When the VCR enters the stop mode, the adjustment is completed.
(6) If the VCR enters the eject mode, repeat steps (1) to (5) again.
(7) Play back the alignment tape (A2) again, confirm that the switching point is the specified value (G).

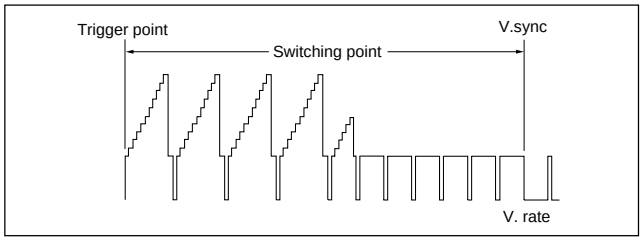


Fig. 3-2-1a Switching point

3.2.2 Slow tracking preset

Signal	(A1) (A2) (A3)	• Ext. input • Color (colour) bar signal [PAL] • Color (colour) bar signal [NTSC]
Mode (Notes)	(B1) (B2) (B3) (B4)	• VHS SP • VHS LP] (PAL) • VHS SP • VHS EP] (NTSC)
Measuring point	(D)	• TV-Monitor
Adjustment part	(F)	• Jig RCU: Code “71“ or “72”
Specified value	(G)	• Minimum noise
Adjustment tool	(H)	• Jig RCU [PTU94023B]

(1) Record the signal (A2) in the mode (B1), and play back the recorded signal.
(2) Set the VCR to the manual tracking mode.
(3) Set the VCR to the FWD slow (+1/6x) mode.
(4) Transmit the code (F) from the Jig RCU to adjust so that the noise bar becomes the specified value (G) on the TV monitor in the slow mode.
(5) Set the VCR to the Stop mode.
(6) Confirm that the noise bar is (G) on the TV monitor in the slow mode.
(7) Repeat steps (3) to (6) in the REV slow (–1/6x) mode.
(8) Repeat steps (1) to (7) in the mode (B2).
(9) Record the signal (A3) in the mode (B3), and play back the recorded signal.
(10) Repeat steps (2) to (7).
(11) Repeat steps (9) and (10) in the mode (B4).

Note:

- ***For FWD slow (+1/6x) playback, transmit the code “08” from the Jig RCU to enter the slow playback mode, and transmit the code “D0” for REV slow (–1/6x) mode.***

3.3 Video circuit

3.3.1 D/A level

Signal	(A1) (A2) (A3)	• Ext. S-input / Ext. input • Color (colour) bar signal [PAL] • S-VHS tape
Mode	(B)	• S-VHS • EE
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• Y OUT terminal (75Ω terminated)
Adjustment part	(F)	• VR1201 (D/A LEVEL ADJ) [2D DIGITAL board]
Specified value (Note)	(G)	• 1.00 ± 0.015 Vp-p (reference value)

(1) Insert the cassette tape (A3) to enter the mode (B).
(2) Observe the Y OUT waveform at the measuring point (D).
(3) Check the Y level value when the External S-input (Y/C separated video signal).
(4) Switch the input signal to the External input (composite video signal), and adjust the adjustment part (F) so that the Y level becomes the same value observed in step (3).

Note:

- ***The specified value (G) is just a reference value to be obtained when the External S-Video (Y/C separated video) signal is input. In actual adjustment, set it to the value observed in step (3).***

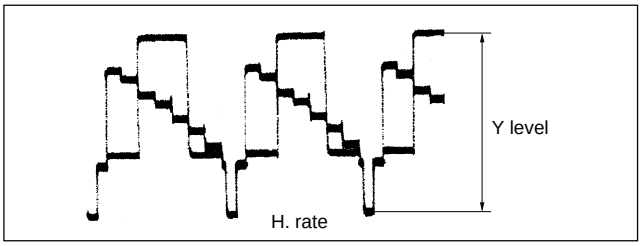


Fig. 3-3-1a D/A level

3.3.2 EE Y/PB Y (S-VHS/VHS) level

Signal	(A1) (A2)	• Ext. input • Color (colour) bar signal [PAL]
Mode	(B1) (B2) (B3)	• EE • S-VHS SP • VHS SP
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• Y OUT terminal (75Ω terminated)
EVR mode EVR address	(F1) (F2) (F3) (F4)	• Jig code “57” • A : 11 • Jig code “21” twice • Jig code “18” or “19” (Channel +/-)
Specified value	(G)	• 1.00 ± 0.05 Vp-p
Adjustment tool	(H)	• Jig RCU [PTU94023B]

(1) Set the VCR to the mode (B1)
(2) Observe the Y OUT waveform at the measuring point (D).
(3) Set the VCR to the EVR mode by transmitting the code (F1) from the Jig RCU.

(4) Set the EVR address to (F2) by transmitting the code (F3) from the Jig RCU.
(5) Transmit the code (F4) from the Jig RCU to adjust so that the Y level of the Y OUT waveform becomes the specified value (G).
(6) Release the EVR mode of the VCR by transmitting the code (F1) from the Jig RCU again. (When the EVR mode is released, the adjusted data is memorized.)
(7) Record the signal (A2) in the mode (B2), and play back the recorded signal.
(8) Set the VCR to the manual tracking mode.
(9) Repeat steps (1) to (5) in the mode (B2).
(10) Record the signal (A2) in the mode (B3), and play back the recorded signal.
(11) Set the VCR to the manual tracking mode.
(12) Repeat steps (1) to (5) in the mode (B3).

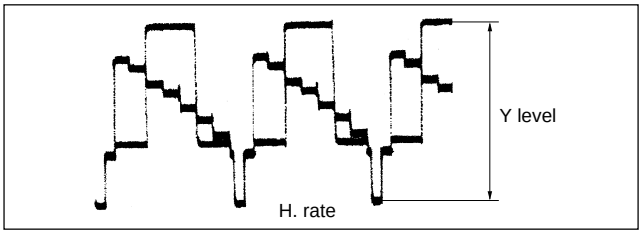


Fig. 3-3-2a EE/PB Y level

3.3.3 REC color (colour) level

Signal	(A1)	• Alignment tape(S-VHS, SP/LP, Color(colour) bar) [MH-2H]
	(A2)	• Ext. input
	(A3)	• Color (colour) bar signal [PAL]
Mode	(B1)	• S-VHS SP
	(B2)	• S-VHS LP
Equipment	(C)	• Oscilloscope
Measuring point	(D1)	• TP106 (PB. FM)
	(D2)	• PB color (colour) output of the LPF
External trigger	(E)	• TP111 (D.FF)
EVR mode	(F1)	• Jig code “57”
EVR address	(F2)	• A : 02
	(F3)	• Jig code “20” and “22”
	(F4)	• Jig code “18” or “19” (Channel +/-)
Specified value	(G)	• SP: “B” x 125 ± 5%
		• LP: “B” x 125 ± 5%
Adjustment tool	(H1)	• Jig RCU [PTU94023B]
	(H2)	• LPF [PTU93006] (See Fig. 3-3-3a.)

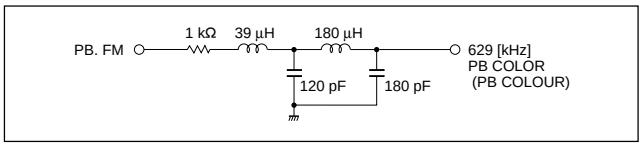


Fig. 3-3-3a LPF

(1) Connect the adjustment tool (H2) to the measuring point (D1).
(2) Apply the external trigger signal to D.FF (E) to observe the PB color (colour) waveform at the measuring point (D2).
(3) Play back the signal (A3) in the mode (B1) of the alignment tape (A1).
(4) Set the VCR to the manual tracking mode.
(5) Adjust tracking so that the PB color (colour) waveform becomes maximum. Make a note of the higher PB color (colour) level as “B” at this time.
(6) Record the signal (A3) in the mode (B1), and play back the recorded signal.
(7) Set the VCR to the EVR mode by transmitting the code (F1) from the Jig RCU.
(8) Set the EVR address to (F2) by transmitting the code (F3) from the Jig RCU.
(9) Transmit the code (F4) from the Jig RCU to adjust so that the higher level channel becomes the specified value (G) of the note "B" level as shown in Fig. 3-3-3b. (Adjust before recording, then confirm it by playing back.)
(10) After adjustment, record the signal (A3) then playing it back again. At this time, confirm that there is no inverting phenomenon or noise appearing on the playback screen.
(11) Release the EVR mode of the VCR by transmitting the code (F1) from the Jig RCU again. (When the EVR mode is released, the adjusted data is memorized.)
(12) Repeat steps (3) to (11) in the mode (B2).

Note:

- ***After adjusting, always perform the confirmation and re-adjustment of the item 3.4.1.***

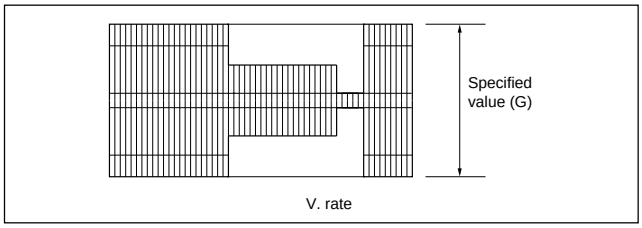


Fig. 3-3-3b REC color (colour) level

3.3.4 Video EQ (Frequency response)

Signal	(A1)	• Ext. S-input
	(A2)	• Video sweep signal
Mode	(B1)	• S-VHS SP
	(B2)	• S-VHS LP
	(B3)	• Picture Control / Smart Picture REC : Normal / Natural PB : Edit / Distinct
Equipment	(C)	• Oscilloscope
Measuring point	(D1)	• Y OUT terminal (75Ω terminated)
Frequency marker	(D2)	• 3 [MHz]
External trigger	(E)	• TP111 (D.FF)
EVR mode	(F1)	• Jig code “57”
EVR address	(F2)	• A : 03
	(F3)	• Jig code “20” and “23”
	(F4)	• Jig code “18” or “19” (Channel +/-)
Specified value	(G)	• SP: 3.6 ± 0.4 div. (–1 ± 1 dB)
		• LP: 3.2 ± 0.4 div. (–2 ± 1 dB)
Adjustment tool	(H)	• Jig RCU [PTU94023B]

(1) Apply the external trigger signal to D.FF (E) to observe the Y OUT waveform at the measuring point (D1).
(2) Record the signal (A2) in the mode (B1), and play back the recorded signal.
(3) Set the VCR to the manual tracking mode.
(4) Set the VCR to the EVR mode by transmitting the code (F1) from the Jig RCU.
(5) Set the EVR address to (F2) by transmitting the code (F3) from the Jig RCU.
(6) Set the slope of the oscilloscope to the channel having higher (D2) marker level of the Y OUT waveform [signal (A2)]. Then set the 100 kHz marker level to the “4” scale on the oscilloscope. In this condition, transmit the code (F4) from the Jig RCU to adjust so that the (D2) marker level reaches the specified value (G).

(7) Release the EVR mode of the VCR by transmitting the code (F1) from the Jig RCU again. (When the EVR mode is released, the adjusted data is memorized.)
(8) Repeat steps (2) to (7) in the mode (B2).

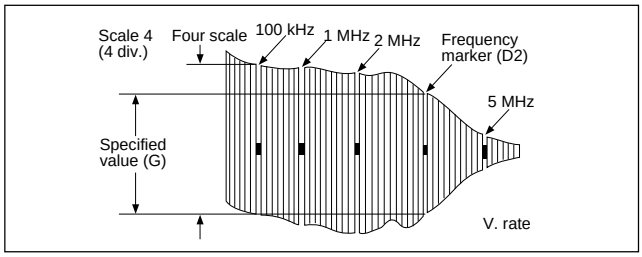


Fig. 3-3-4a Video EQ (Frequency Response)

3.3.5 Auto picture initial setting

Signal	(A1) (A2) (A3)	• Ext. input • Video: Optional • VHS tape
Mode	(B)	• EE → Auto adjust (SP/LP REC → PB)
Adjustment part	(F)	• Jig code “58”
Specified value	(G)	• STOP mode
Adjustment tool	(H)	• Jig RCU [PTU94023B]

(1) Insert the cassette tape (A3).
(2) Set the VCR to the Auto adjust mode by transmitting the code (F) from the Jig RCU. When the VCR enters the stop mode, the adjustment is completed. When the VCR enters the eject mode, repeat steps (1) to (2) again.

3.4 Audio circuit

Notes:

- ***This adjustment should be done after the “REC color (colour) level adjustment” for the video circuit has been completed.***
- ***GND (Ground) should be taken from the Tuner shield case.***

3.4.1 Audio REC FM

Signal	(A1) (A2) (A3)	• Ext. input • Audio: No signal • Video: Color (colour) bar signal [PAL]
Mode	(B)	• S-VHS LP
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• TP2253 (A. PB. FM)
External trigger	(E)	• TP111 (D.FF)
EVR mode EVR address	(F1) (F2) (F3) (F4)	• Jig code “57” • A : 30 • Jig code “23” and “20” • Jig code “18” or “19” (Channel +/-)
Specified value	(G1) (G2)	• 400 ± 100 mVp-p • More than 250 mVp-p
Adjustment tool	(H)	• Jig RCU [PTU94023B]

(1) Apply the external trigger signal to D.FF (E) to observe the Audio PB FM waveform at the measuring point (D).
(2) Record the signal (A3) with no audio signal input in the mode (B), and play back the recorded signal.
(3) Set the VCR to the manual tracking mode.
(4) If the A.PB FM level is not within the specified value (G1), perform the adjustment in a following procedure.
(5) Set the VCR to the EVR mode by transmitting the code (F1) from the Jig RCU.
(6) Set the EVR address to (F2) by transmitting the code (F3) from the Jig RCU.
(7) Transmit the code (F4) from the Jig RCU to adjust so that the A.PB FM level of the higher channel level becomes the specified value (G1). (Adjust before recording, then confirm it by playing back.)
(8) If the specified value (G1) is not obtained, transmit the code (F4) from the Jig RCU to adjust so that the waveform level of the lower channel level becomes the specified value (G2). (Adjust before recording, then confirm it by playing back.)
(9) Release the EVR mode of the VCR by transmitting the code (F1) from the Jig RCU again. (When the EVR mode is released, the adjusted data is memorized.)

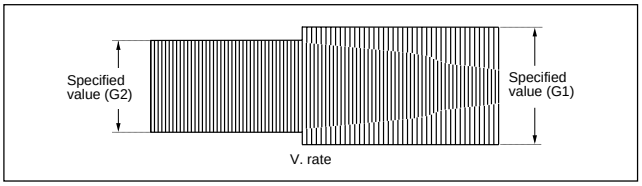


Fig. 3-4-1a Audio REC FM

3.5 Syscon circuit

Note:

- ***When perform this adjustment, remove the Mechanism assembly.***

3.5.1 Timer clock

Signal	(A)	• No signal
Mode	(B)	• EE
Equipment	(C)	• Frequency counter
Measuring point Short point	(D1) (D2) (D3)	• IC3001 pin 61 • IC3001 pin 24 • C3026 + and –
Adjustment part	(F)	• C3025 (TIMER CLOCK)
Specified value	(G)	• 1024.008 ± 0.001 Hz (976.5549 ± 0.0010 µsec)

(1) Connect the frequency counter to the measuring point (D1).
(2) Connect the short wire between the short point (D2) and Vcc (5V).
(3) Short the leads of capacitor (D3) once in order to reset the microprocessor of the SYSCON.
(4) Disconnect the short wire between the short point (D2) and Vcc then connect it again.
(5) Adjust the Adjustment part (F) so that the output frequency becomes the specified value (G).

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VICTOR COMPANY OF JAPAN, LIMITED
AV & MULTIMEDIA COMPANY. 12,3-chome,Moriya-cho,Kanagawa-ku,Yokohama,Kanagawa-prefecture,221-8528,Japan

Printed in Japan
0307 VP

SECTION 4
CHARTS AND DIAGRAMS

NOTES OF SCHEMATIC DIAGRAM

Safety precautions
The Components identified by the symbol ⚠ are critical for safety. For continued safety, replace safety critical components only with manufacturer's recommended parts.

1. Units of components on the schematic diagram

Unless otherwise specified.

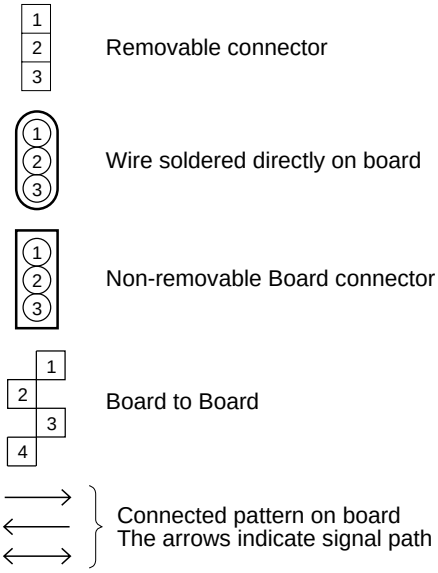
1) All resistance values are in ohm, 1/6 W, 1/8 W (refer to parts list).
   Chip resistors are 1/16 W.
   K or k: kΩ (1000Ω), M: MΩ (1000kΩ)
2) All capacitance values are in µF, (P: PF).
3) All inductance values are in µH, (m: mH).
4) All diodes are 1SS133, MA165 or 1N4148M (refer to parts list).

2. Indications of control voltage

AUX : Active at high

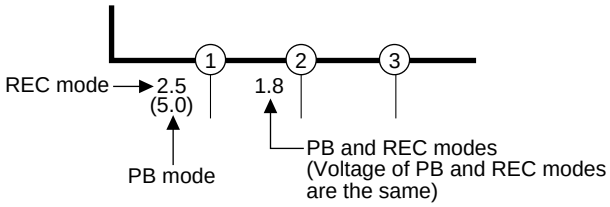
$\overline{\text{AUX}}$ or AUX(L) : Active at low

3. Interpreting Connector indications



4. Voltage measurement

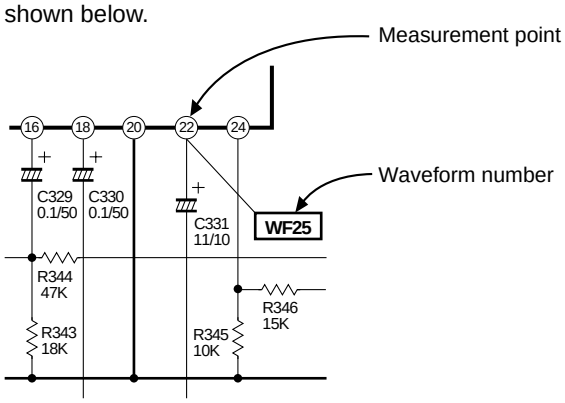
1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode
   PB : Alignment tape, colour bar SP mode, normal VHS mode
   — : Unmeasurable or unnecessary to measure
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, Normal VHS mode
   PB : REC then playback it
3) Movie Camera circuits
   Measured using a correctly illuminated gray scale or colour bar test charts in the E-E mode
4) Indication on schematic diagram
   Voltage Indications for REC and PB mode on the schematic diagram are as shown below.



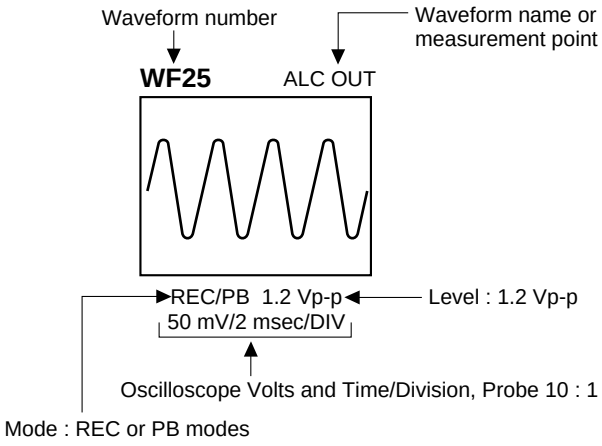
Note: If the voltages are not indicated on the schematic diagram, refer to the voltage charts.

5. Waveform measurement

1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode
   PB : Alignment tape, colour bar SP mode, normal VHS mode
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, normal VHS mode
   PB : REC then playback it
3) Movie Camera circuits
   Measured using a correctly illuminated gray scale or colour bar test chatrs in the E-E mode
4) Indication on schematic diagram
   Waveform indications on the schematic diagram are as shown below.



5) Waveform indications



6. Signal path Symbols

The arrows indicate the signal path as follows.

Playback signal path

Playback and recording signal path

Recording signal path
(including E-E signal path)

Capstan servo path

Drum servo path

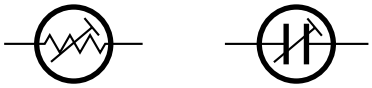
(Example)

R-Y Playback R-Y signal path

Y Recording Y signal path

7. Indication of the parts for adjustments

The parts for the adjustments are surrounded with the circle as shown below.



8. Indication of the parts not mounted on the circuit board

"OPEN" is indicated by the parts not mounted on the circuit board.

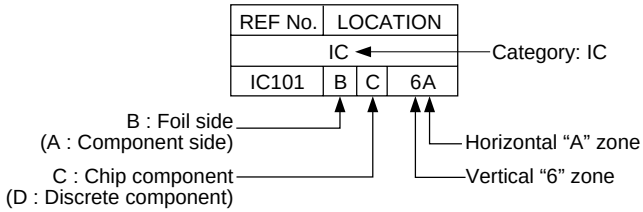
CIRCUIT BOARD NOTES

1. Foil and Component sides

1) Foil side (B side) :
   Parts on the foil side seen from foil face (pattern face) are indicated.
2) Component side (A side) :
   Parts on the component side seen from component face (parts face) indicated.

2. Parts location guides

Parts location are indicated by guide scale on the circuit board.

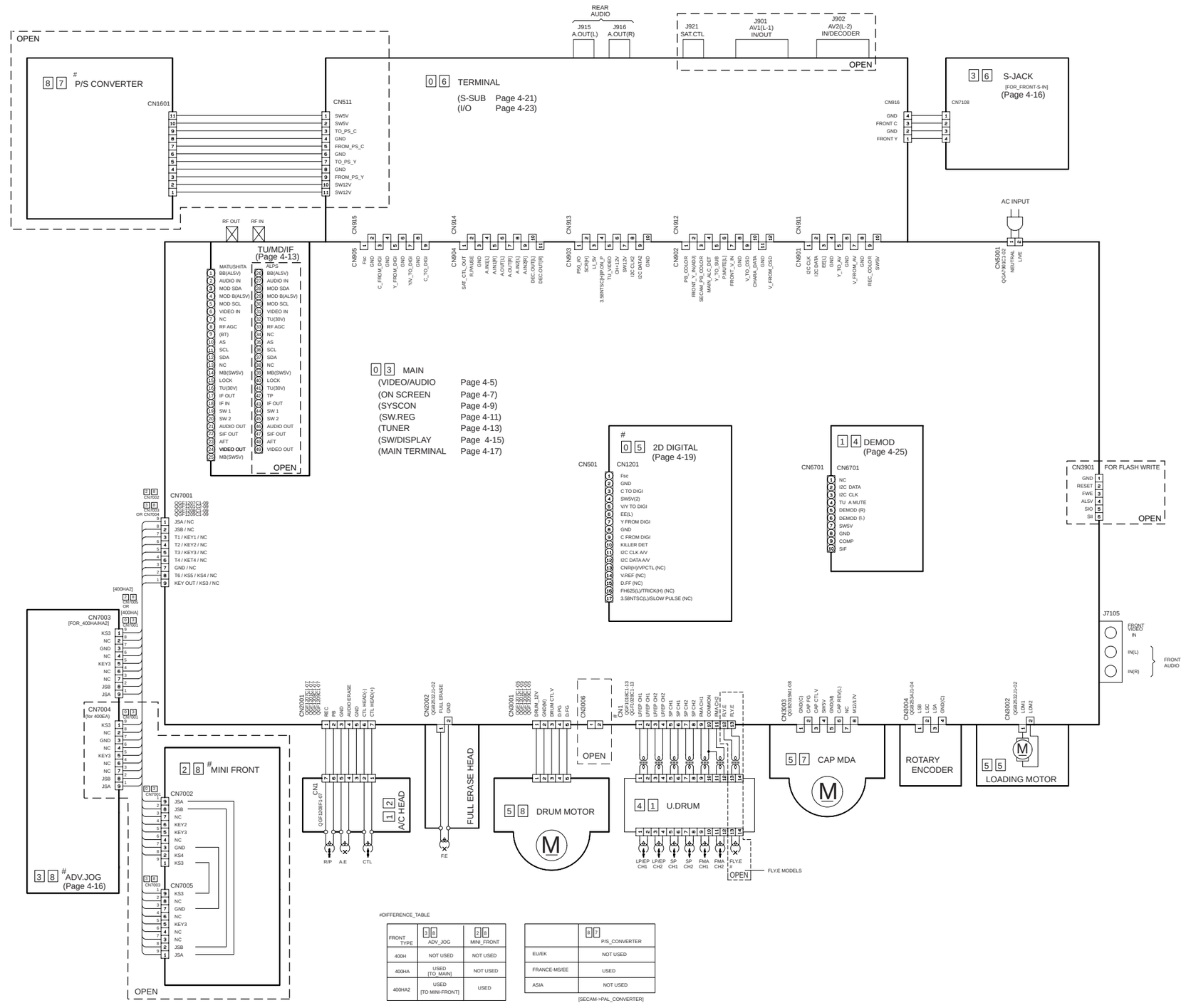


Note:

For general information in service manual, please refer to the Service Manual of GENERAL INFORMATION Edition 4 No. 82054D (January 1994).

4.1 BOARD INTERCONNECTIONS

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.

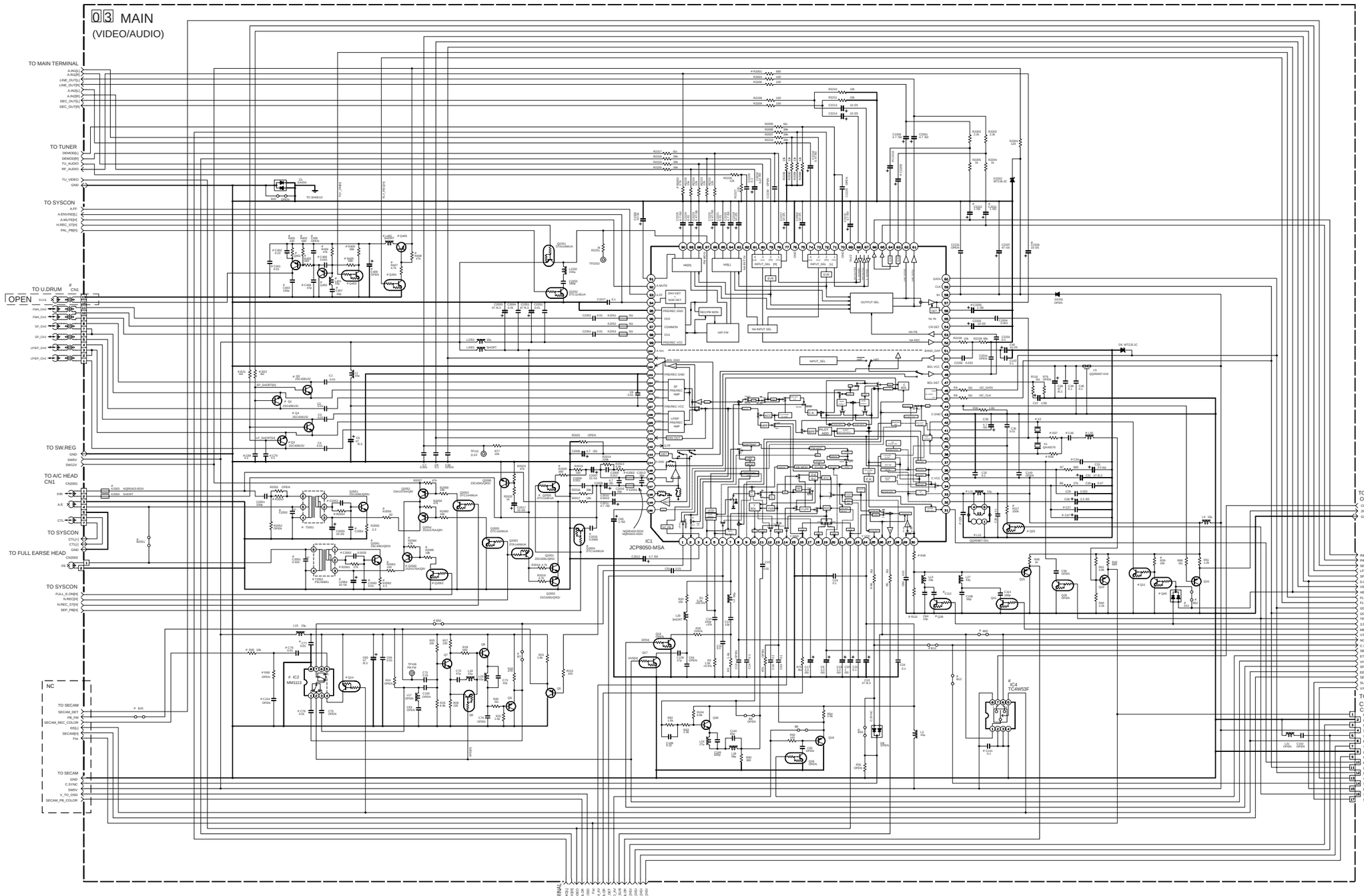


NO	NAME
96	
93	
92	
91	
87	P/S CONVERTER
76	
58	DRUM MOTOR
57	CAP MDA
55	LOADING MOTOR
41	U.DRUM
39	JOG
38	ADV.JOG
36	S-JACK
28	MINI FRONT
14	DEMOD
12	A/C HEAD
09	
06	TERMINAL
05	2D/ DIGITAL
03	MAIN

p10353001a_rev0

4.2 MAIN (VIDEO/AUDIO) SCHEMATIC DIAGRAM

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.



#DEFFERENCE TABLE ○:Used ×:Not used

LINEUP	CN1	FLY.ERASE	H.SHORT	Psc OUT				REC.APC DET	PAL_EP.TRICK			ACC DET	3D			PB_C_LEVEL/TRAP			for_MS	PAL	C.SYNC	EP.MODE	RF-OUT	AUDIO.DUBBING									LEVEL.IND.		CE			
		R401-R408 C401-C405 L401,L402 C409	Q1-Q4 R1-R3,C1-C3 R21,R22	R37	R38	C46	L30	C27 or C47	R39 Q11 Q40	B52	D11	C34	B13	X2 0.01uF QAX0575	R4	R46	R111	C112 Q39	IC2、Q14、B55 C56、C57、B50 R68,C124	B3	B12	R2020 C2014 C2016 Q2005	R2001 C2001 C2006	T2051	B2051	R2053	R2054	R2056	C2052	C2053	C2054	C2061-Q2063 C2064 R2061-R2065 C2061-C2064	C2209 C2210	C2211 C2212	L11	L12	C25	K2001 K2002 K2003
S6855,50,51,52,53EU/EK	1-11	×	○	×	1k	100p	SHORT	C27=0.022	○	○	×	0.1	×	×	○	560	×	×	×	○	○	○	○	PELN0832	○	4.7k	12k	47	0.082	0.0047	0.022	×	10/16	×	○	6p	○
S7860EK	1-11	×	○	×	1k	100p	SHORT	C27=0.022	×	×	×	0.22	○	0.01uF	×	470	×	×	×	○	×	○	○	PELN0860	×	4.7k	15k	100	0.033	0.0033	0.01	○	0.1/50	○	×	○	6p	○
S7850,7851EU	1-13	○	×	×	1k	100p	SHORT	C27=0.022	○	○	×	0.1	×	×	○	560	×	×	×	○	○	○	○	PELN0860	×	4.7k	15k	100	0.033	0.0033	0.01	○	0.1/50	○	×	○	6p	○
S8850EU/EK	1-13	○	×	×	1k	100p	SHORT	C27=0.022	×	×	×	0.22	○	0.01uF	×	470	×	×	×	○	×	○	○	PELN0860	×	4.7k	15k	100	0.033	0.0033	0.01	○	0.1/50	○	×	○	6p	○
S6850MS	1-11	×	○	×	1k	100p	SHORT	C27=0.022	○	○	×	0.1	×	×	○	560	×	×	×	○	○	○	×	PELN0832	○	4.7k	12k	47	0.082	0.0047	0.022	×	10/16	×	○	6p	○
S7850,7851MS	1-14	○	×	×	1k	100p	SHORT	C27=0.022	○	○	×	0.1	×	X2	○	560	×	×	×	○	○	○	×	PELN0860	×	4.7k	15k	100	0.033	0.0033	0.01	○	0.1/50	○	×	○	6p	○
S8850MS	1-14	○	×	×	1k	100p	SHORT	C27=0.022	×	×	×	0.22	○	0.01uF	×	470	×	×	×	○	×	○	×	PELN0860	×	4.7k	15k	100	0.033	0.0033	0.01	○	0.1/50	○	×	○	6p	○
S5800AM,5580AM,S5880AM/EA	1-11	×	○	1k	×	15p	100u	C47=2.2/50	○	×	○	0.1	×	QAX0575	○	330	3.3k	○	×	○	○	○	○	PELN0860	×	4.7k	15k	100	0.033	0.0033	0.01	○	0.1/50	○	×	○	4p	SHORT
S7859EE	1-11	×	○	1k	×	15p	100u	C47=2.2/50	○	×	○	0.1	×	QAX0575	○	330	3.3k	○	×	○	○	○	○	PELN0860	×	4.7k	15k	100	0.033	0.0033	0.01	○	0.1/50	○	×	○	4p	SHORT
S5980AH,S5980AJ	1-11	×	○	1k	×	15p	100u	C27=0.022	○	×	○	0.1	×	QAX0575	○	330	3.3k	○	×	○	○	○	○	PELN0860	×	4.7k	15k	100	0.033	0.0033	0.01	○	0.1/50	○	×	○	4p	SHORT

TITLE REC.	B65	IC4 C141
YES	×	○
NO	○	×

NOTES-UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.

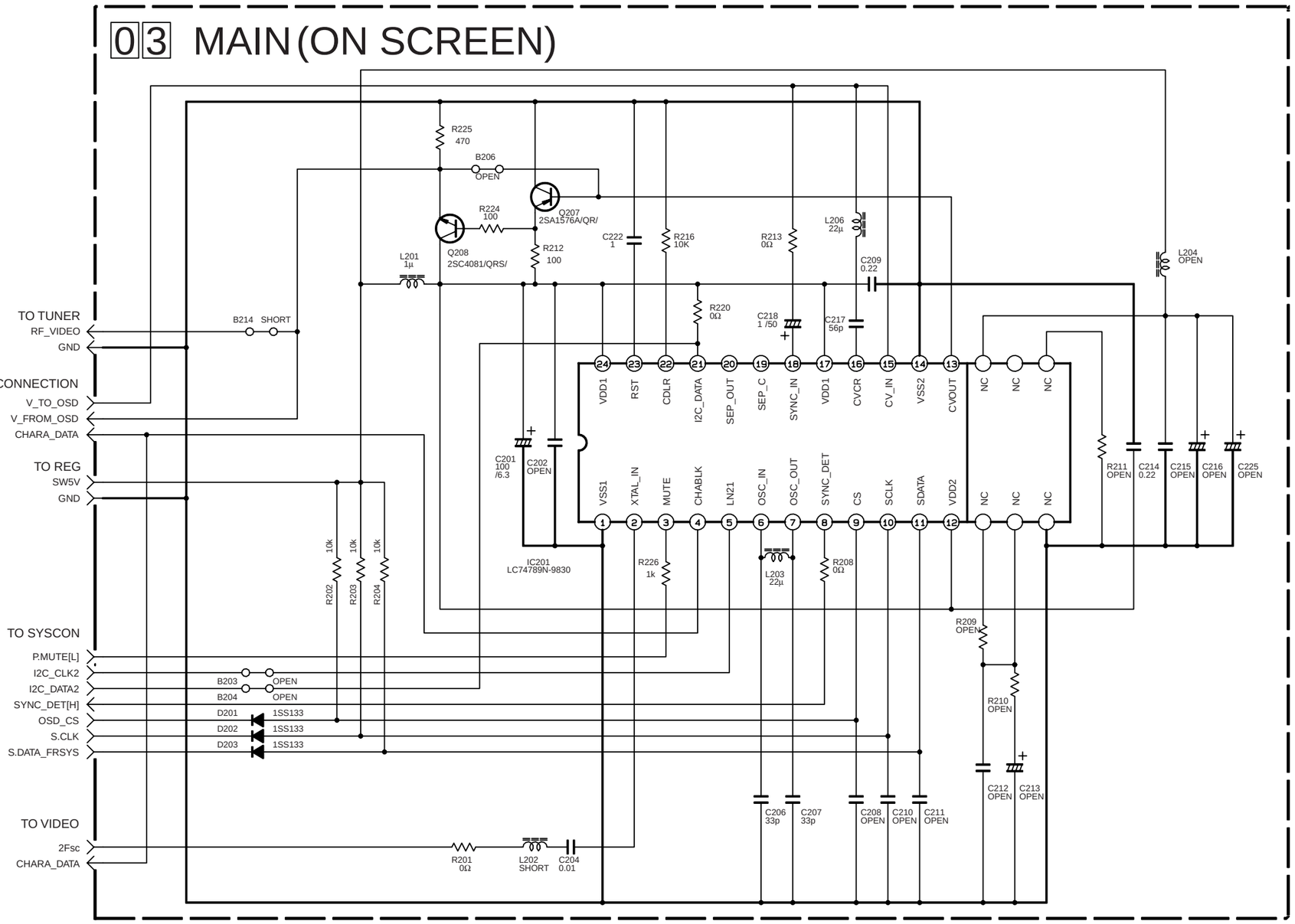
+ ELECTROLYTIC
CERAMIC
MY MYLER
N NON POLAR

ALL NPN TYPE TRANSISTORS ARE 2SC4081/QRS/ or 2SD1819A/QRS/ or 2PC4081/R/
ALL PNP TYPE TRANSISTORS ARE 2SA1576A/QR/ or 2SB1218A/QR/ or 2PA1576/R/
ALL NPN TYPE DIGITAL TRANSISTORS ARE DTC144WUA or UNS21E or RN1309 or PDTC144WU
ALL PNP TYPE DIGITAL TRANSISTORS ARE DTA144WUA or UNS31E or RN2309 or PDTA144WU

p10352001a_rev0.1

4.3 MAIN (ON SCREEN) SCHEMATIC DIAGRAM

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.



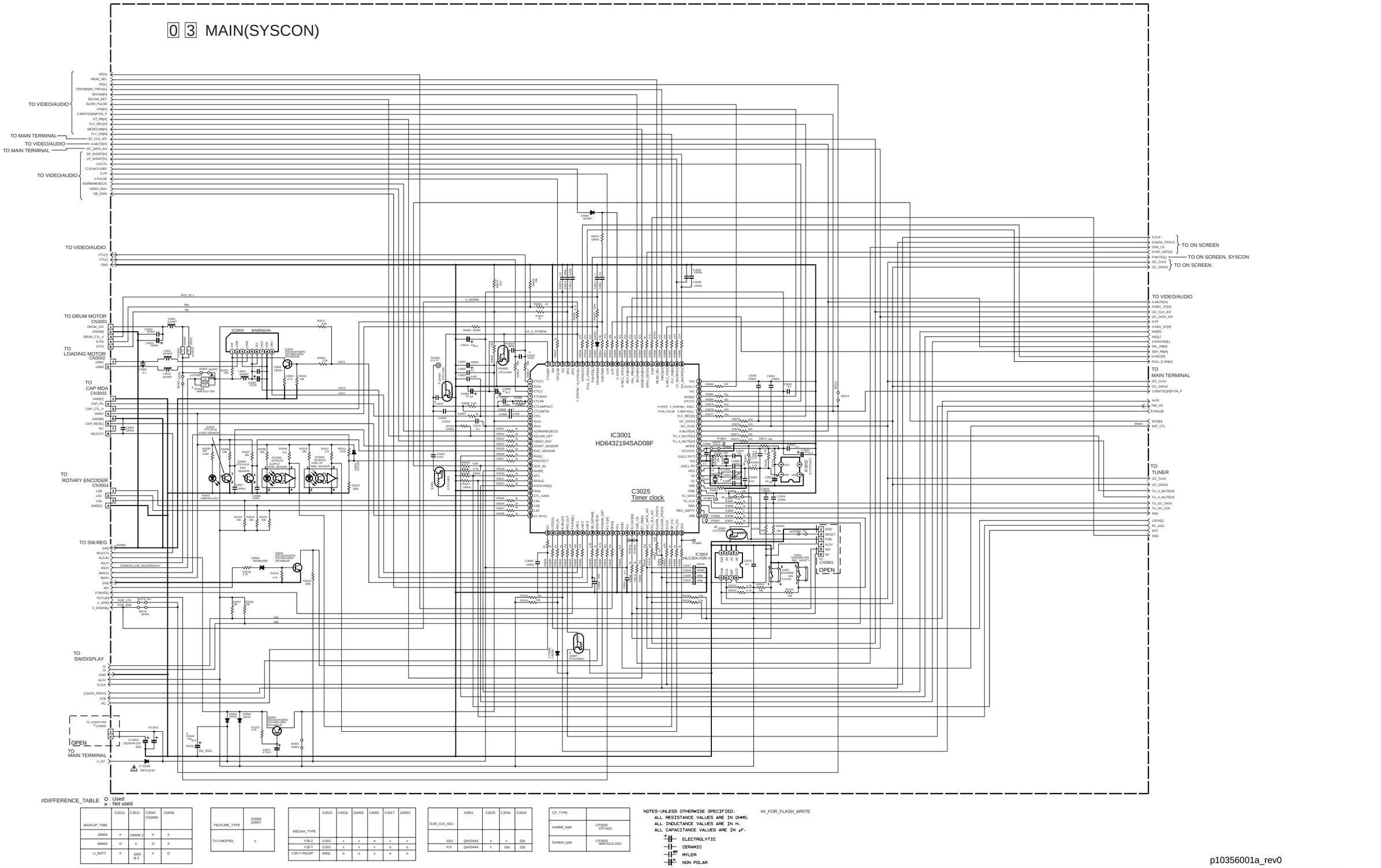
NOTES: UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN µF.

ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

p30088002a_rev0

4.4 MAIN (SYSCON) SCHEMATIC DIAGRAM

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.



#DIFFERENCE_TABLE O : Used × : Not used

BACKUP_TIME	C3010	C3011	C3042 CN3006	D3006
10MIN	X	3300/6.3	X	X
60MIN	O	X	O	X
LI_BATT	X	1000 /6.3	X	O

FEATURE_TYPE	D3008 Q3007
TV-LINK(P50)	o

MECHA_TYPE	C4015	C4016	Q4002	C4005	C4017	Q4003
Y29-2	0.001	x	x	o	x	x
Y29-T	0.001	x	x	o	o	o
Y29-T+PALEP	680p	o	o	x	o	o

SUB_CLK_ADJ	X3001	C3025	C3041	C3024
ADJ	QAX0445	0	x	22p
FIX	QAX0444	x	10p	12p

CP_TYPE	
Leaded_type	CP3002 ICP-N25
Surface_type	CP3003 NRP2012-1R0

NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.

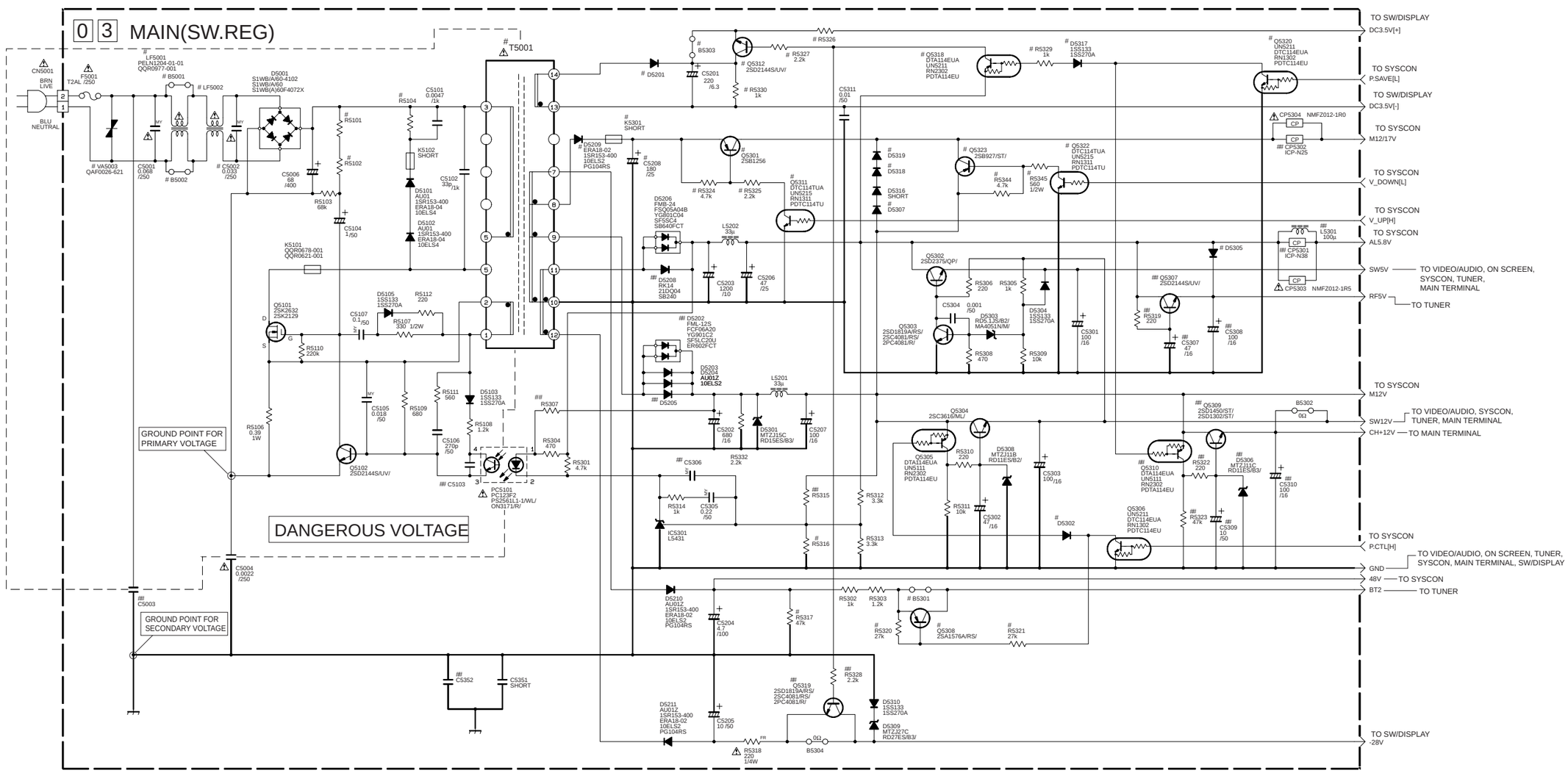
##_FOR_FLASH_WRITE

ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

p10356001a_rev0

4.5 MAIN (SW.REG) SCHEMATIC DIAGRAM

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.



##MARK ELEMENTS ARE NOT MOUNTED

#DIFFERENCE TABLE 1

	Q5301 Q5311 D5209	C5208 K5301 R5324	R5325	D5307
HIGH SPEED FF/REW	YES			11ES2 ERA15-02 1A3G
-YES-	YES			
-NO-	NO			SHORT

#DIFFERENCE TABLE 2

	R5101 R5102	R5104	B5301	D5302	Q5308 R5320 R5321	R5317	B5303	Q5312 Q5318 Q5320	D5317 R5327 R5329	R5330	D5305	R5316
POWER SAVE												
-YES-	330k	150k 2W	NO	1S133 1SS270A	YES		NO	YES			AK04 1EQS04 1S4	12k
-NO-	220k	68k 2W	YES	SHORT	NO		YES	NO			11ES2 ERA15-02 1A3G	10k

#DIFFERENCE TABLE 3

	B5001 B5002	C5002	LF5001	LF5002	T5001
CE	NO	YES	YES	QQR0978-001 QQR0608-001 QQR0609-001 QQR0610-001	QQS0033-001 QQS0034-001
OTHER	YES	NO	NO	QQR0532-001 QQR0533-001 QQR0516-001 QQR0502-001 QQR0816-001	QQS0030-002 QQS0031-002 QQS0036-001

#DIFFERENCE TABLE 4

EP	Q5323 Q5322	R5344 R5345	D5318 D5319
-YES-	YES		11ES2 ERA15-02 1A3G
-NO-	NO		SHORT

#DIFFERENCE TABLE 5

LEVEL IND.	D5201	R5326
-YES-	AK04 1EQS04 1S4	2.2
-NO-	AU01Z 10ELS2	SHORT

#DIFFERENCE TABLE 6

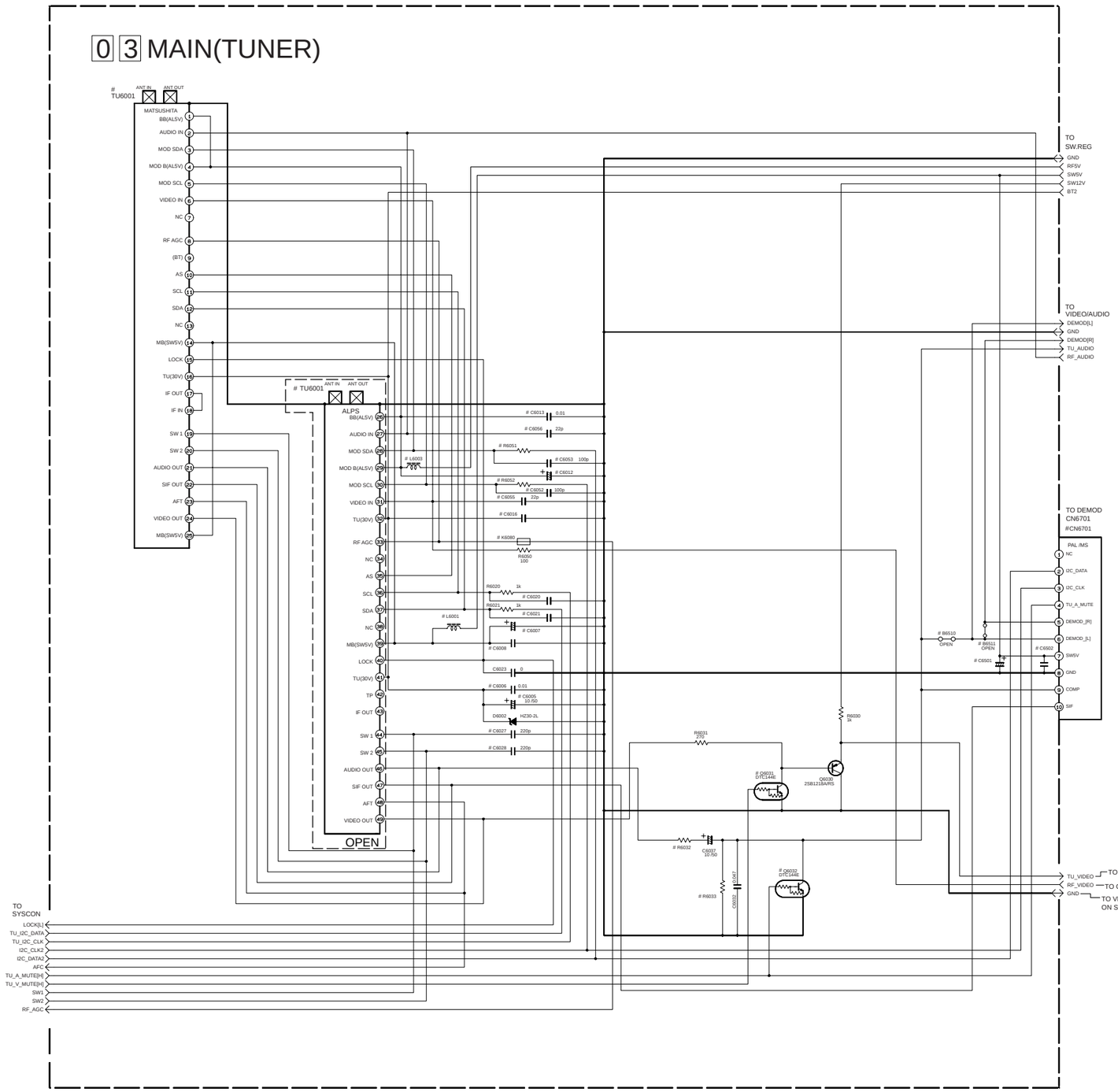
SURGE	VA5003
PHILIPS 110-240V	YES
OTHER	NO

NOTES: UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN µF.
ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

p20202001a_rev1

4.6 MAIN (TUNER) SCHEMATIC DIAGRAM

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.



DIFFERENCE TABLE ○ : Used × : Not used

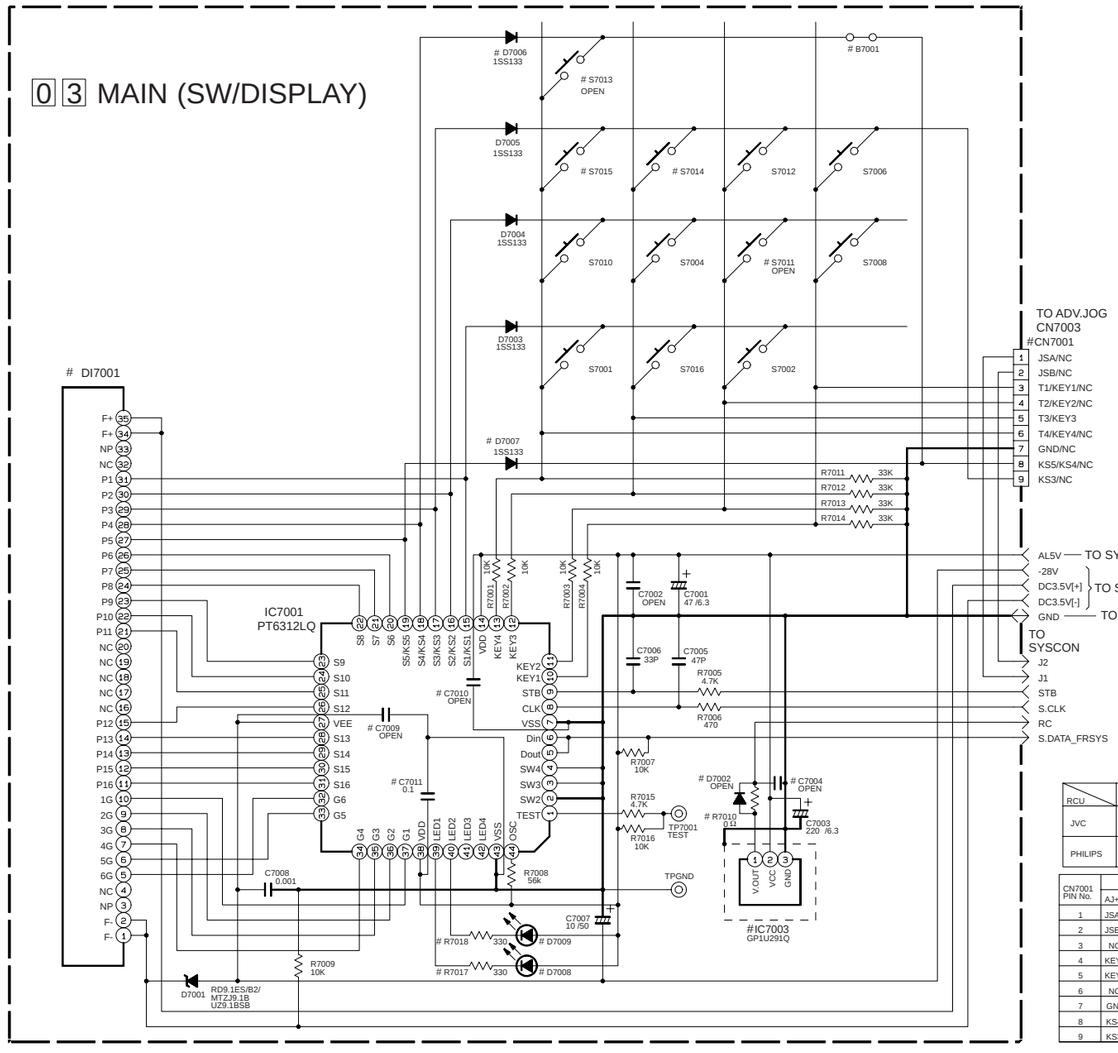
			EU/EK	FRANCE MS	ASIA 3SYSTEM	ASIA 4SYSTEM	HR-FS1EU
TUNER		TU6001	ALPS	LG	MATSUSHITA	MATSUSHITA	ALPS
			QAU0208	QAU0210	QAU0212	QAU0236	QAU0208
ATS+		K6080	1kΩ	1kΩ	×	×	10kΩ
SW5V		L6001	10μ	10μ	10μ	10μ	10μ
		C6007	220/6.3	220/6.3	220/6.3	220/6.3	220/6.3
		C6008	0.01	×	0.01	0.01	0.01
RF5V		L6003	47μ	47μ	47μ	47μ	10μ
		C6012	100/16	100/16	100/16	100/16	330/6.3
		C6013	0.01	0.01	0.01	0.01	0.01
BT2	RF CONV.	C6016	0.01	×	0.01	0.01	2200p
	TUNER	C6005	×	×	×	×	○
		C6006	×	×	×	×	×
RF CONV.	I2C	R6051	100	×	100	100	470
		C6053	○	×	○	○	×
		R6052	100	×	100	100	470
		C6052	○	×	○	○	○
	AUDIO IN	C6056	×	×	×	×	○
	VIDEO IN	R6060	○	×	○	○	○
		C6055	×	×	×	×	×
TUNER I2C		C6020	×	×	×	×	×
		C6021	×	×	×	×	×
SYSTEM SW		C6027	×	×	×	×	×
		C6028	×	×	×	×	×
AUDIO OUT		R6032	4.7k	18k	18k	0	3.3k
		R6033	1.8k	18k	33k	×	1.5k
		C6032	○	×	○	×	○
		Q6032	○	○	×	×	○
VIDEO OUT		Q6031	○	○	×	×	○
DEMOD PASS CON		C6501	×	×	×	×	×
		C6502	0.01	0.01	0.01	0.01	2200p

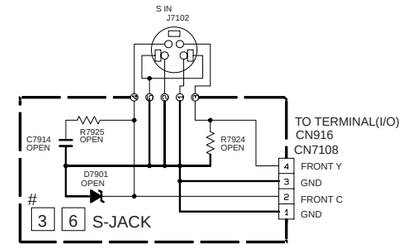
NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.
ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

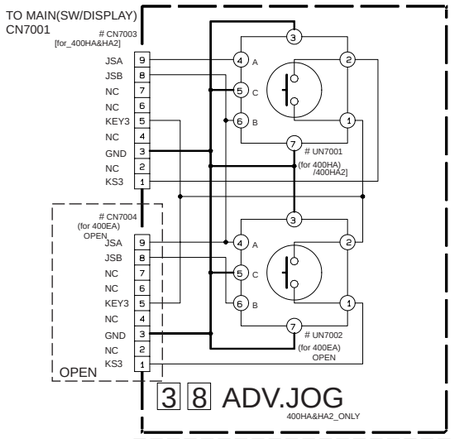
p10355001a_rev0

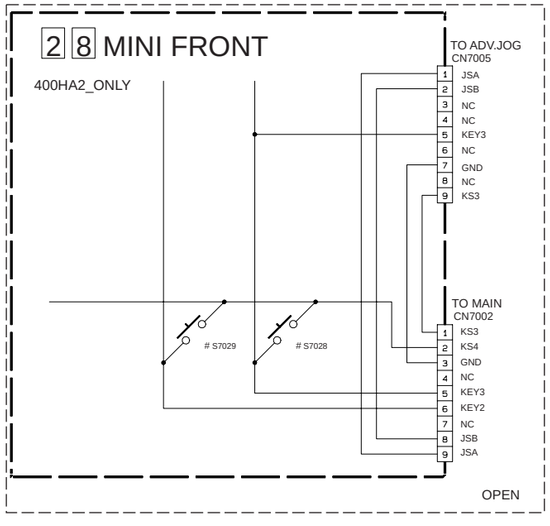
4.7 MAIN (SW.DISPLAY), S-JACK AND ADV.JOG SCHEMATIC DIAGRAMS

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.









○ : Used
× : Not used

#DIFFERENCE TABLE

SYMBOL / LED	R7017 D7008	R7018 D7009
for S7002	○	×
for S7016	×	○

RCU	R7010	C7004 D7002	IC7003
JVC	SHORT	X	GP1U291Q PNA4652MOOYC PIC-28143LJ
PHILIPS	SHORT	X	GP1U299Q PNA4655MOOYC PIC-28142LJ

CN7001 PIN No.	FDP A/+	FDP Adv.JOG	FDP J/S	FDP S/Play	FDP MINI OPE	FDP OTHERS
1	JSA	JSA	JSA	NC	NC	NC
2	JSB	JSB	JSB	NC	NC	NC
3	NC	NC	T1	T1	KEY1	NC
4	KEY2	NC	T2	T2	KEY2	NC
5	KEY3	KEY3	T3	T3	KEY3	NC
6	NC	NC	T4	T4	KEY4	NC
7	GND	GND	GND	GND	NC	NC
8	KS4	NC	KS5	KS5	KS4	NC
9	KS3	KS3	NC	KS3	NC	NC

	D7007	B7001	CN7001	S7014 S7015
A/+	×	○	○	X
Adv.JOG	×	×	○	X
J/S	○	×	○	X
S/Play	○	×	○	X
MINI OPE	×	○	○	X
OTHERS	×	×	×	O

#DIFFERENCE TABLE FDP_TYPE

WITHOUT LEVEL_IND	QLF0031-001 OR QLF0033-001
WITH LEVEL_IND	QLF0032-001 OR QLF0034-001

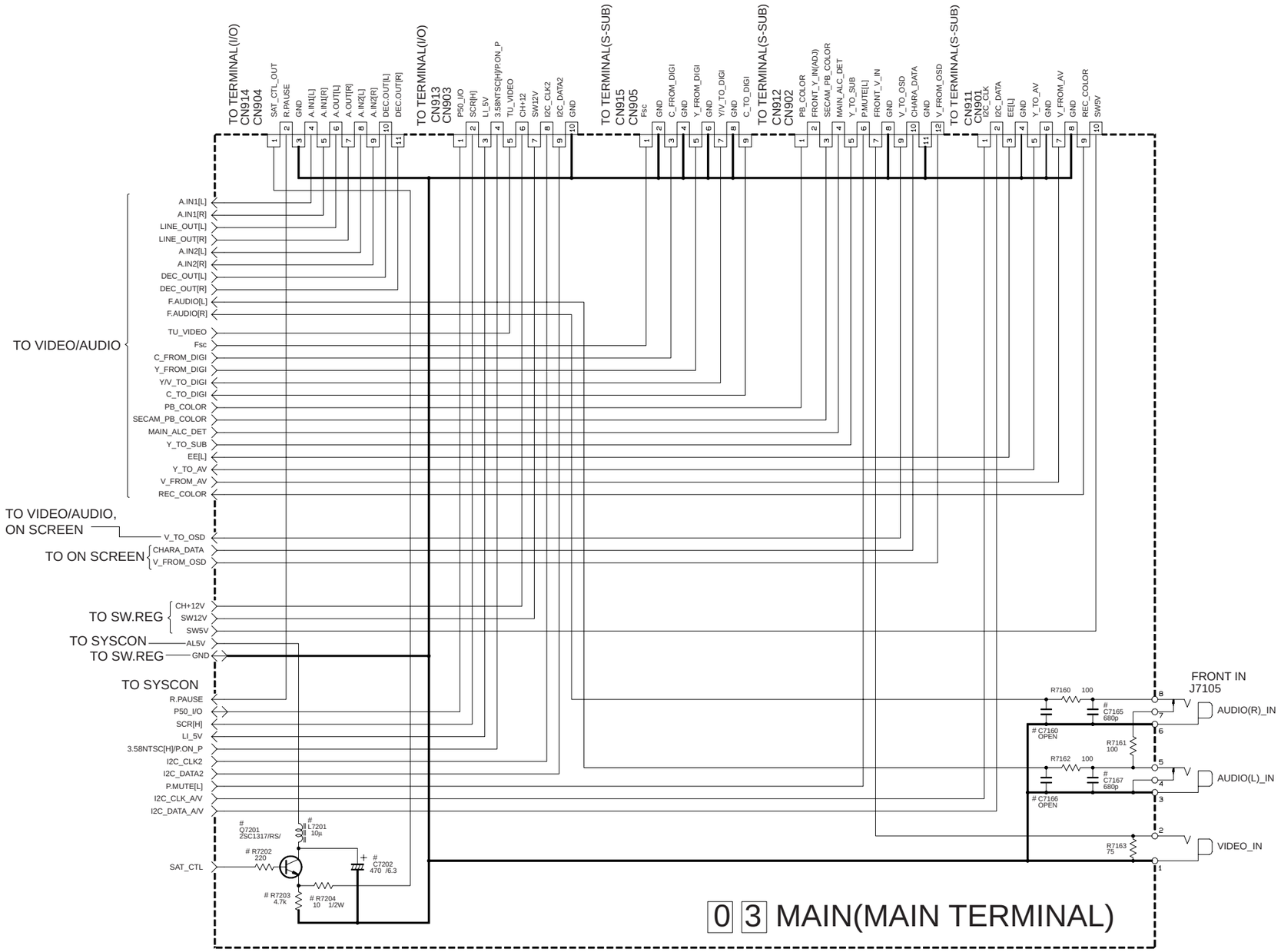
NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.

ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

p20218001a_rev0

4.8 MAIN (MAIN TERMINAL) SCHEMATIC DIAGRAM

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.



NOTES : UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN µF.

ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

DIFFERENCE TABLE

SAT CTL	Q7201 R7202 R7203 R7204 C7202 L7201
YES	○
NO	×

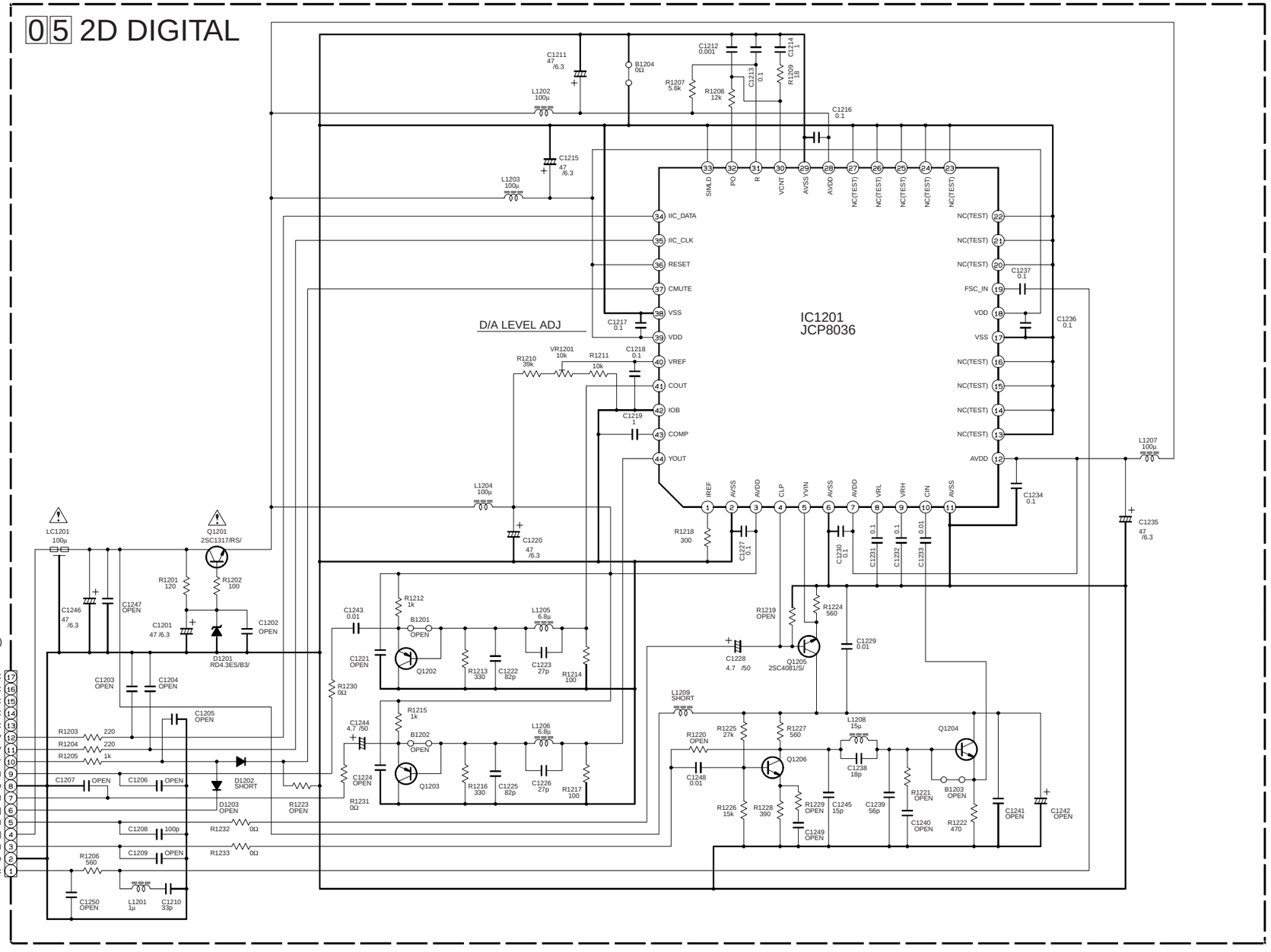
○ : Used
× : Not used

CE	C7165 C7167
YES	○
NO	×

p30089001a_rev0

4.9 2D DIGITAL SCHEMATIC DIAGRAM

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.



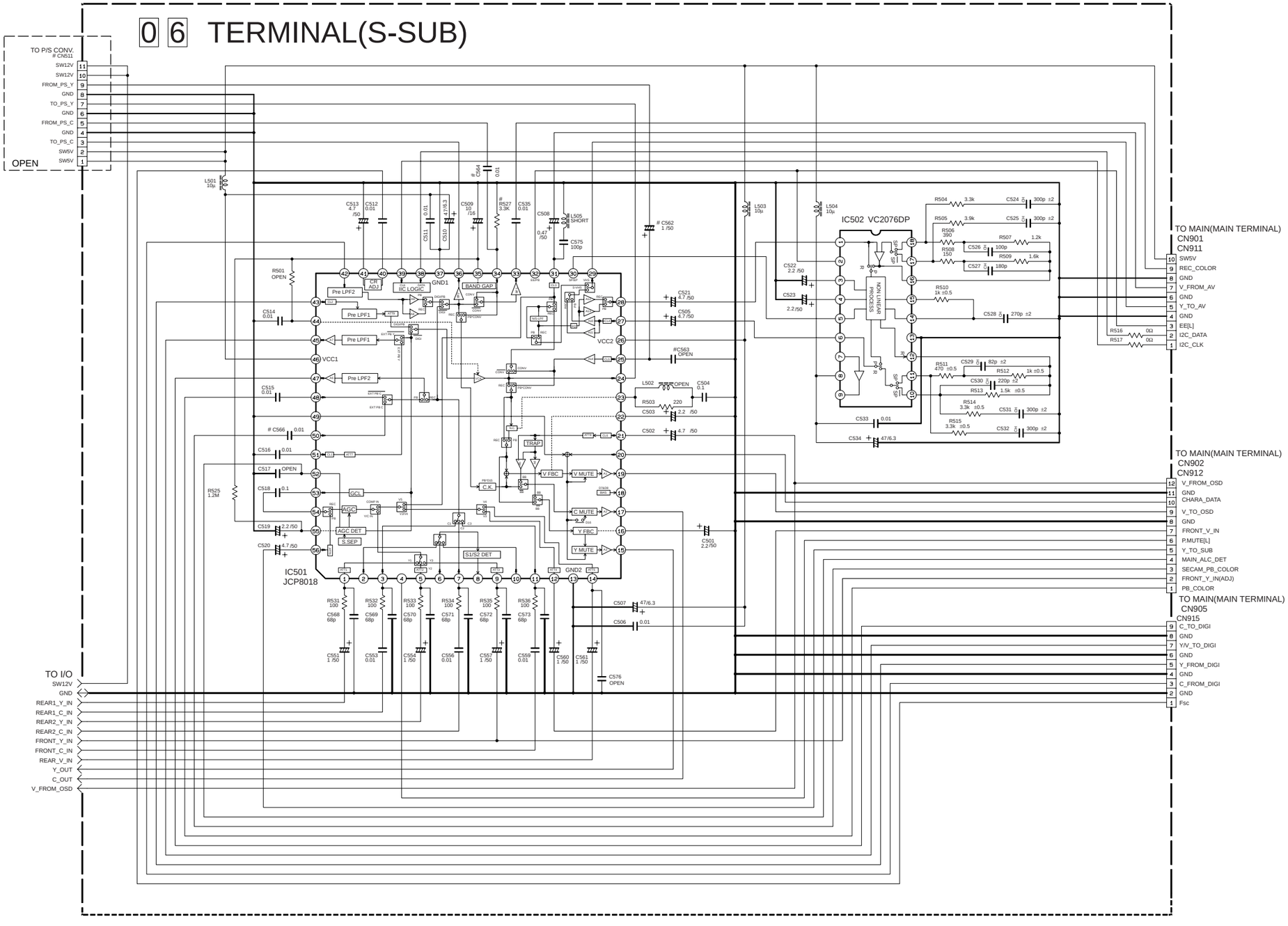
ALL NPN TYPE TRANSISTORS ARE 2SC4081/QRS/ or 2SD1819A/QRS/ or 2PC4081/R/.
ALL PNP TYPE TRANSISTORS ARE 2SA1576A/QR/ or 2SB1218A/QR/ or 2PA1576/R/.

NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.
ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

p20216001a_rev0

4.10 TERMINAL (S-SUB) SCHEMATIC DIAGRAM

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.



○ : Used
× : Not used

DIFFERENCE TABLE

	CN511 C562 C564 C566	C563 R527
MS	○	×
OTHERS	×	○

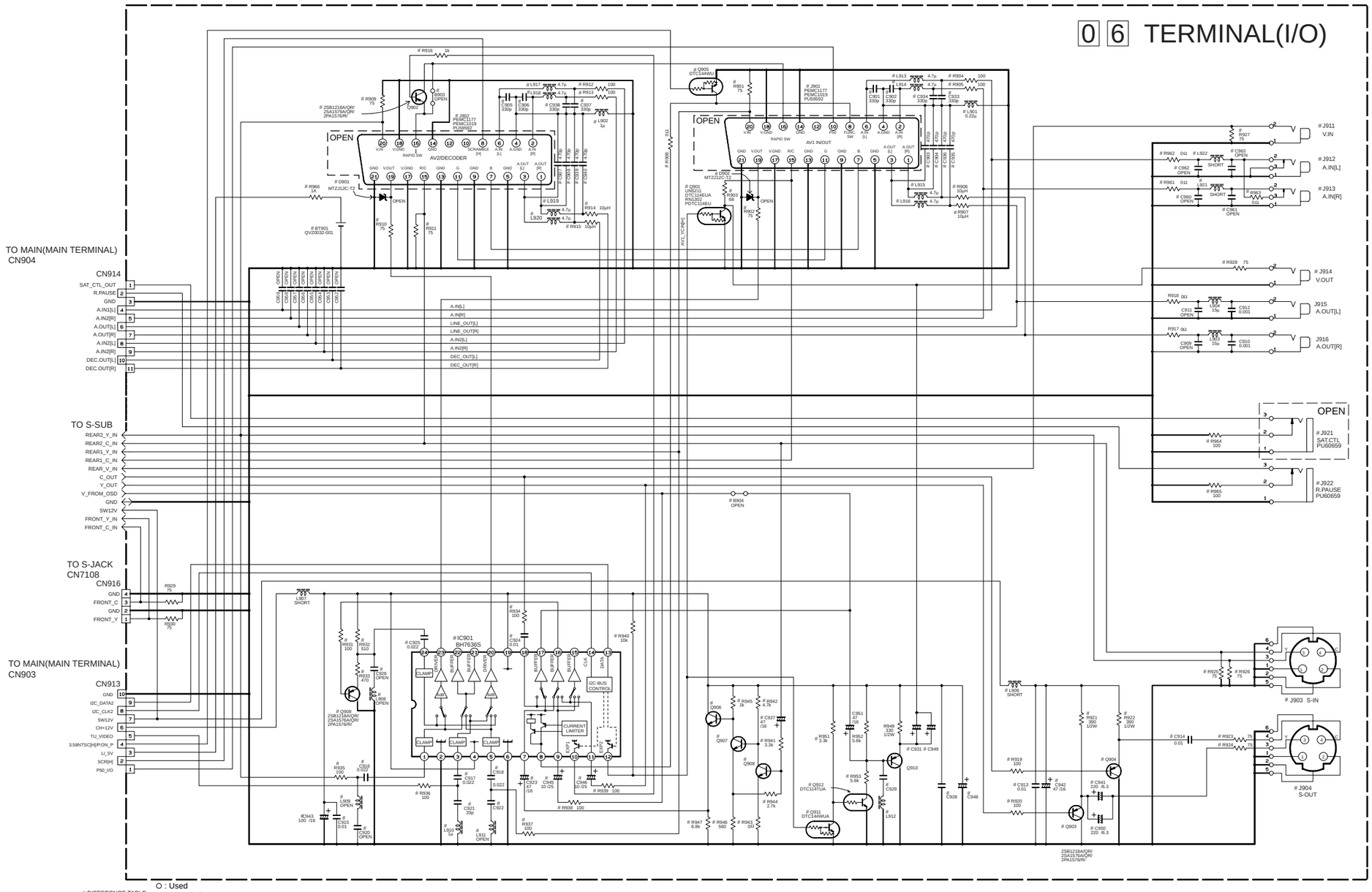
NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.

ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

p20213001a_rev0

4.11 TERMINAL (I/O) SCHEMATIC DIAGRAM

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.



○ : Used
× : Not used

DIFFERENCE TABLE

		CH+	REAR S-OUT	S-IN	REAR IN/OUT	SAT CTL	R.PAUSE	SW12VDECUP				CE/V-OUT DRIVER				BACK UP
		R901-R908, R909-R916, R931-R947, R951,R953 L901,L902 L908-L911, L913-L916, L917-L920, IC901 B903,B904 D901,D902 J901,J902	C901-C904, C905-C908, C916-C918, C920-C927, C933-C936, C937-C940, C945,C946 Q902 Q901,Q905 Q906-Q909, Q911,Q912	J904 R919-R924 C913,C914 C941,C942 C950 Q903,Q904 L906	J903 R925,R926	J911-J914 R927,R928 R961-R963 L921,L922 C960-C963	J921 R964	J922 R965	C915	C943	C928	C948	C929	L912	C931	C949	R966 BT901
EURO MODELS	WITHOUT REAR S-OUT	○	×	×	×	○	×	0.01	100/16	0.01	OPEN	OPEN	OPEN	10/25	OPEN	×
	WITH REAR S-OUT	○	○	×	×	○	○	0.01	100/16	0.01	OPEN	OPEN	OPEN	10/25	OPEN	×
ARC MODELS		×	○	○	○	×	×	OPEN	OPEN	0.01	47/16	5.6k	SHORT	220/6.3	220/6.3	○

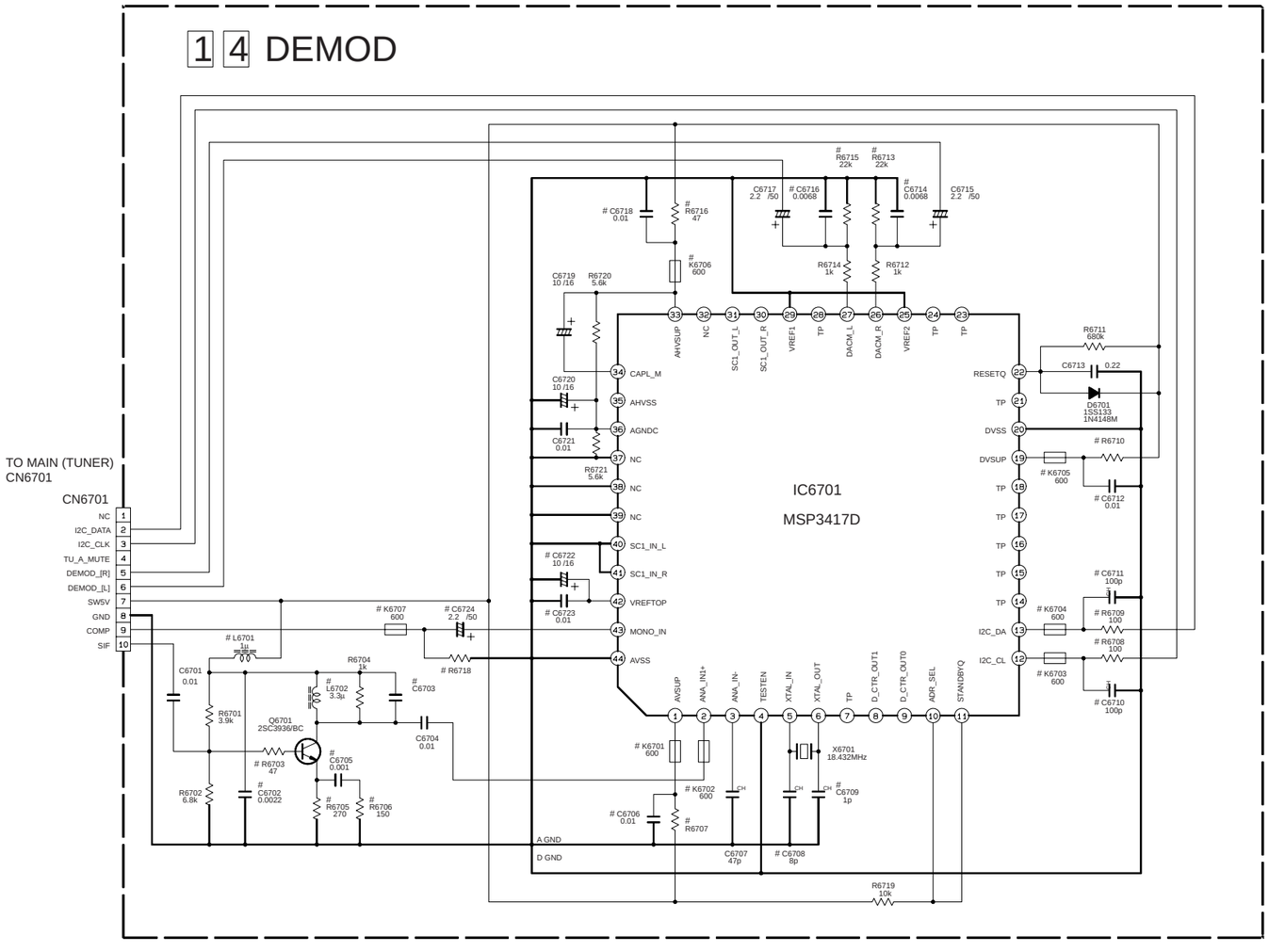
ALL NPN TYPE TRANSISTORS ARE 2SC4081/QRS/ or 2SD1819A/QRS/ or 2PC4081/R/.
ALL PNP TYPE TRANSISTORS ARE 2SA1576A/QR/ or 2SB1218A/QR/ or 2PA1576/R/.

NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.
ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

p20212001a_rev0

4.12 DEMODULATOR SCHEMATIC DIAGRAM

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.



NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.

ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

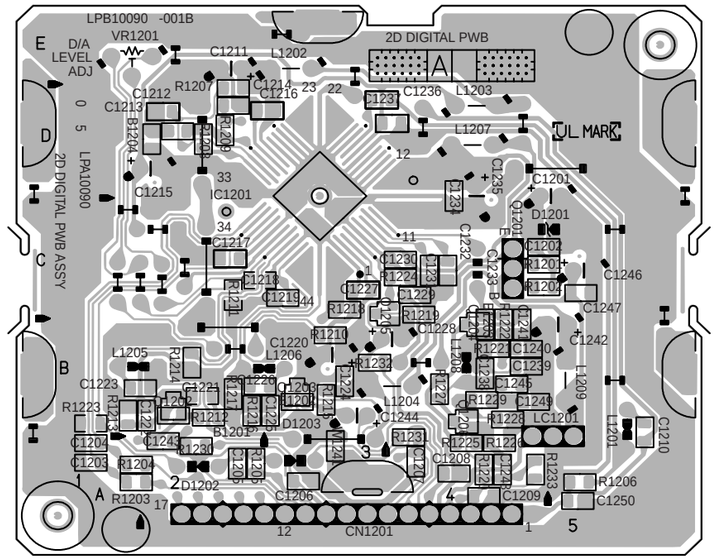
DIFFERENCE TABLE ○ : Used × : Not used

		FRANCE MS	EU/EK	ARC	EU/EK	FRANCE MS	KOREA	ARC 4SYSTEM	ARC 3SYSTEM
DEMOD PWB ASSY		LPA10094 -01*	LPA10094 -02*	LPA10094 -03*	LPA10094 -04*	LPA10094 -05*	LPA10094 -06*	LPA10094 -07*	LPA10094 -08*
PRE AMP	R6703	47	47	47	47	0	47	0	0
	R6705	270	270	100	270	270	270	270	270
	R6706	150	150	×	100	×	100	×	×
	C6702	0.0022	0.0022	0.0022	×	×	×	×	×
	C6703	×	×	220p	×	×	×	220p	180p
	C6705	0.001	0.001	×	0.001	×	0.001	×	×
	L6701	1μ	1μ	1μ	SHORT	SHORT	SHORT	SHORT	SHORT
	L6702	3.3μ	3.3μ	3.3μ	3.3μ	×	3.3μ	3.3μ	3.3μ
MONO IN	K6707	FE 600	×	×	×	FE 600	×	×	×
	C6724	0.22/50	×	×	×	0.22/50	×	×	×
	R6718	×	×	×	×	×	×	×	×
I2C-BUS	R6708,R6709	100	100	100	FE 600	FE 600	FE 600	FE 600	FE 600
	K6703,K6704	FE 600	FE 600	FE 600	1K	1K	1K	1K	1K
	C6710,C6711	×	×	×	×	×	×	×	×
ANALOG Vcc	R6707	22	47	47	FE 600	FE 600	FE 600	FE 600	FE 600
	K6701	FE 600	FE 600	FE 600	33	33	33	33	33
	C6706	×	×	×	×	×	×	×	×
DIGITAL Vcc	R6710	10	12	12	FE 600	FE 600	FE 600	FE 600	FE 600
	K6705	FE 600	FE 600	FE 600	10	10	10	10	10
	C6712	×	×	×	×	×	×	×	×
DAC Vcc	R6716	47	47	47	FE 600	FE 600	FE 600	FE 600	FE 600
	K6706	FE 600	FE 600	FE 600	47	47	47	47	47
	C6718	×	×	×	×	×	×	×	×
XTAL	C6708	8p	8p	8p	7p	7p	7p	7p	7p
	C6709	1p	1p	1p	3p	3p	3p	3p	3p
DAC OUT	R6713,R6715	×	×	×	×	×	×	×	×
	C6714,C6716	0.0068	0.0068	0.0068	0.0022	0.0068	0.0022	0.0022	0.0022
VREF	C6722	×	×	×	×	×	×	×	×
	C6723	0.01	0.01	0.01	0.01	0.01	0.001	0.01	0.01

p20162001a_rev3

4.13 2D DIGITAL AND DEMODULATOR CIRCUIT BOARD

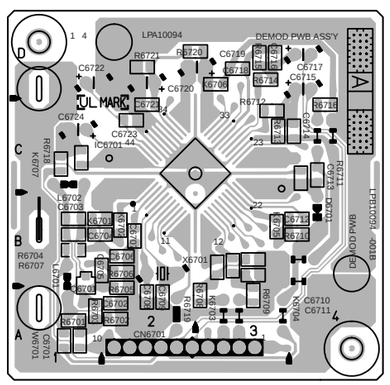
<05> 2D DIGITAL
LPB10090-001B



COMPONENT PARTS LOCATION GUIDE <2D DIGITAL>

REF.NO.	LOCATION			REF.NO.	LOCATION			REF.NO.	LOCATION			REF.NO.	LOCATION		
CAPACITOR				C1230	B	C	4C	COIL				R1212	B	C	2B
C1201	A	D	5D	C1231	B	C	4C	L1201	A	D	5A	R1213	B	C	1B
C1202	B	C	5C	C1232	B	C	4C	L1202	A	D	3E	R1214	B	C	2B
C1203	B	C	1A	C1233	A	D	4C	L1203	A	D	4D	R1215	B	C	3B
C1204	B	C	1A	C1234	B	C	4D	L1204	A	D	4B	R1216	B	C	2B
C1205	B	C	2A	C1235	A	D	4D	L1205	A	D	2B	R1217	B	C	2B
C1206	B	C	3A	C1236	B	C	4D	L1206	A	D	3B	R1218	B	C	3C
C1207	B	C	4A	C1237	B	C	3D	L1207	A	D	4D	R1219	B	C	4C
C1208	B	C	4A	C1238	B	C	4B	L1208	A	D	4B	R1220	B	C	4A
C1209	B	C	4A	C1239	B	C	5B	L1209	A	D	5B	R1221	B	C	4B
C1210	B	C	6B	C1240	B	C	5B	TRANSISTOR				R1222	B	C	4B
C1211	A	D	2E	C1241	B	C	5B	Q1201	A	D	5C	R1223	B	C	1B
C1212	B	C	2D	C1242	A	D	5B	Q1202	B	C	2B	R1224	B	C	4C
C1213	B	C	2D	C1243	B	C	2A	Q1203	B	C	3B	R1225	B	C	4A
C1214	B	C	2D	C1244	A	D	3B	Q1204	B	C	4B	R1226	B	C	4A
C1215	A	D	2D	C1245	B	C	5B	Q1205	B	C	3C	R1227	B	C	4B
C1216	B	C	3D	C1246	A	D	5C	Q1206	B	C	4B	R1228	B	C	4B
C1217	B	C	2C	C1247	B	C	5C	RESISTOR				R1229	B	C	4B
C1218	B	C	2C	C1248	B	C	4A	R1201	B	C	5C	R1230	B	C	2A
C1219	B	C	3C	C1249	B	C	5B	R1202	B	C	5C	R1231	B	C	4B
C1220	A	D	3B	C1250	B	C	5A	R1203	B	C	1A	R1232	B	C	3B
C1221	B	C	2B	CONNECTOR				R1204	B	C	1A	R1233	B	C	5A
C1222	B	C	2B	CN1201	A	D	5A	R1205	B	C	2A	VR1201	A	D	1E
C1223	B	C	2B	DIODE				R1206	B	C	5A	OTHER			
C1224	B	C	3B	D1201	A	D	5C	R1207	B	C	2D	LC1201	A	D	5B
C1225	B	C	3B	D1202	A	D	2A	R1208	B	C	2D				
C1226	B	C	2B	D1203	A	D	3A	R1209	B	C	2D				
C1227	B	C	3C	IC				R1210	B	C	3B				
C1228	A	D	3B	IC1201	B	C	3D	R1211	B	C	2C				
C1229	B	C	4C												

<14> DEMODULATOR
LPB10094-001C


LPA10094
DEMOD PWB ASSY
DEMOD PWB
LPB10094
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R6721
R6720
C6719
C6718
C6717
C6715
C6720
C6706
R6714
R6716
C6716
C6724
C6723
C6721
IC6701
R6718
R6707
K6707
L6702
C6702
C6703
C6704
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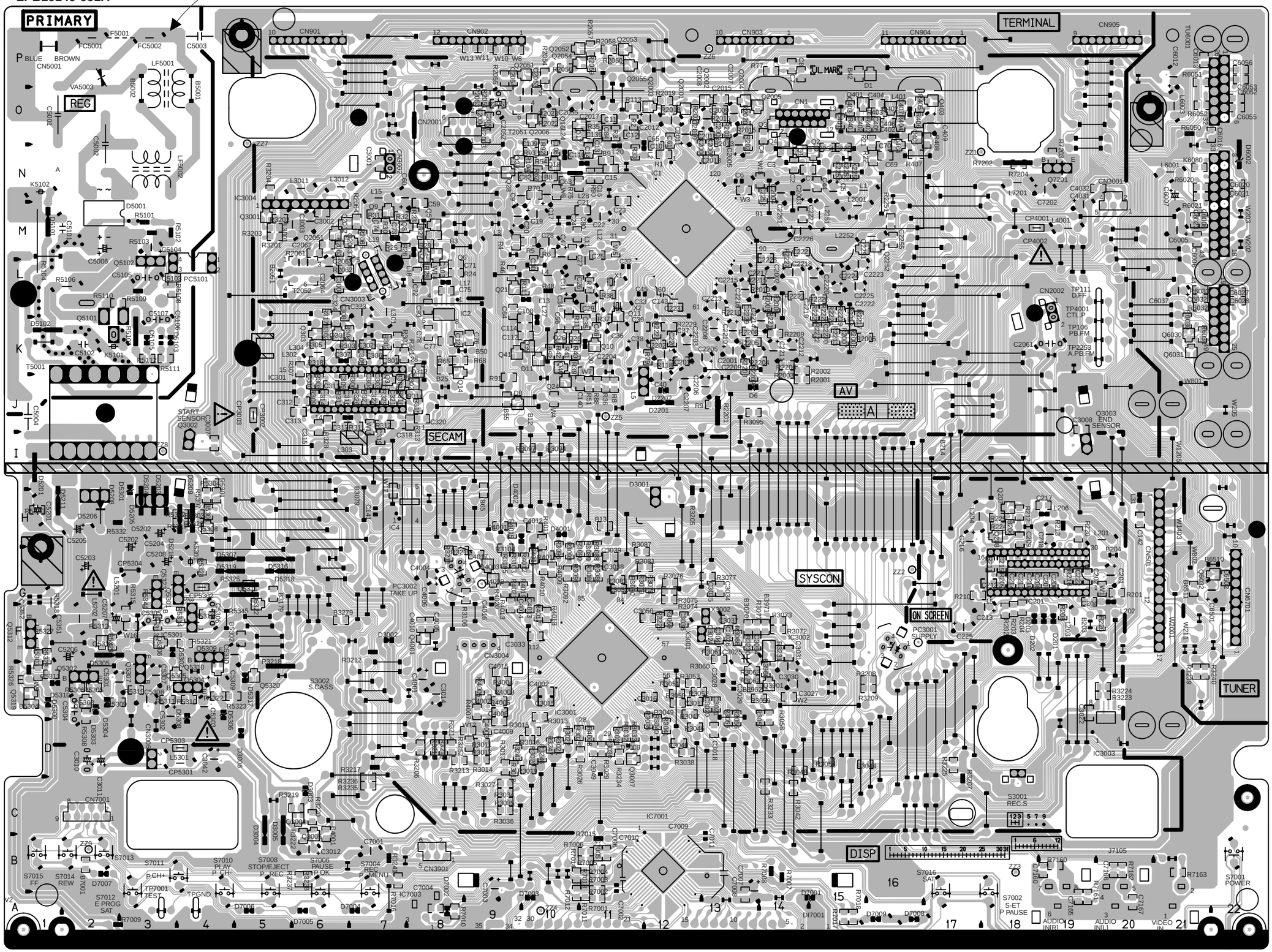
R6738
R6739

4.15 MAIN CIRCUIT BOARD

<03> MAIN
LPB10140-001A



COMPONENT PARTS LOCATION GUIDE <MAIN>

REF.NO.	LOCATION
CAPACITOR	
C1	B C 14N
C2	B C 14N
C3	B C 14N
C4	B C 14O
C5	A D 15N
C6	A D 13N
C7	B C 14P
C8	B C 14P
C9	A D 9N
C10	B C 12N
C11	B C 11O
C12	B C 11O
C13	B C 11N
C14	B C 11N
C15	B C 11N
C16	B C 11N
C17	A D 10N
C19	A D 10M
C20	A D 9M
C21	B C 11M
C22	B C 11M
C23	B C 11N
C24	B C 10M
C25	B C 11M
C26	B C 11L
C27	B C 10M
C28	A D 10M
C29	B C 11L
C30	B C 10L
C31	A D 10L
C32	A D 11L
C33	A D 11L
C34	B C 10L
C35	B C 11K
C36	A D 11K
C37	A D 12K
C38	A D 11K
C39	B C 12K
C40	A D 12J
C44	B C 15N
C45	A D 12L
C46	B C 11K
C47	A D 10M
C56	B C 10K
C59	B C 8M
C60	A D 7M
C61	B C 12O
C63	B C 10N
C64	B C 9L
C65	A D 12O
C69	B C 16N
C70	B C 16N
C71	B C 8L
C72	B C 8L
C73	B C 7M
C74	B C 7M
C75	B C 8L
C76	B C 9K
C77	B C 8K
C78	B C 8K
C80	B C 10M
C82	B C 10N
C84	B C 11O
C93	B C 8L
C103	B C 8L
C106	B C 10N
C108	B C 10K
C109	B C 10O
C110	B C 10N
C112	B C 10K
C114	B C 10K
C124	B C 8K
C139	B C 11O
C140	B C 11J
C141	A D 7H
C142	B C 20H
C143	A D 12L
C201	A D 20G
C202	B C 19G
C204	B C 19G
C206	B C 19G
C207	B C 19G
C208	B C 18G
C209	B C 18H
C210	B C 18G
C211	B C 18G
C212	B C 18G
C213	A D 18F
C214	B C 18G
C215	B C 18G
C216	A D 17H
C217	B C 19H
C218	A D 19H
C222	B C 19G
C225	A D 17F
C301	B C 7K
C302	B C 7K
C303	B C 7J
C304	B C 7J
C305	B C 7K
C306	B C 7K
C307	B C 6K
C308	B C 6L
C309	B C 6J
C310	B C 6J
C311	B C 6J
C312	B C 6J
C313	B C 6J
C314	B C 6J
C315	B C 6J
C316	B C 6J
C317	B C 6J
C318	B C 7J
C319	B C 7I
C320	B C 8J
C321	B C 7J
C322	B C 7J
C323	A D 7L
C324	B C 6K
C401	B C 15O
C402	B C 15O
C403	B C 15O
C404	B C 16O
C405	B C 16O
C406	B C 16O
C407	B C 16O
C409	A D 17O
C2001	A D 13K
C2002	A D 14L
C2003	A D 14N
C2004	B C 14N
C2005	A D 13N
C2006	B C 13O
C2007	A D 13O
C2008	A D 13O
C2009	B C 13O
C2010	B C 13O
C2011	A D 12O
C2012	A D 12O
C2013	B C 13N
C2014	B C 12K
C2015	B C 13O
C2016	B C 13O
C2017	A D 11O
C2051	B C 9O
C2052	A D 9O
C2053	B C 10P
C2054	B C 9P
C2055	A D 10O
C2061	A D 19K
C2062	B C 6M
C2063	B C 6L
C2064	A D 6L
C2201	B C 12K
C2202	B C 12K
C2203	A D 12K
C2204	A D 11K
C2205	A D 13K
C2206	A D 13J
C2207	A D 12J
C2208	A D 13K
C2209	A D 13K
C2210	A D 13K
C2211	A D 14K
C2212	A D 14K
C2213	A D 13L
C2214	A D 14L
C2215	A D 13L
C2216	A D 13L
C2217	A D 13L
C2218	A D 14L
C2219	A D 15L
C2220	A D 15L
C2221	B C 14M
C2222	A D 15L
C2223	A D 15L
C2224	B C 15L
C2225	A D 15L
C2226	A D 14M
C2227	B C 14M
C2228	B C 14M
C2229	B C 13L
C2230	B C 15K
C2231	B C 12L
C2251	A D 14N
C2252	B C 14N
C2253	B C 15N
C2254	B C 15N
C2255	B C 16M
C3001	B C 7N
C3002	B C 6M
C3003	A D 6M
C3004	B C 6L
C3007	B C 4I
C3008	B C 19J
C3010	A D 2D
C3011	A D 2D
C3012	A D 6B
C3014	A D 8E
C3015	B C 10E
C3016	B C 12E
C3017	B C 13E
C3018	B C 13D
C3020	B C 13E
C3021	B C 13E
C3022	B C 19E
C3024	B C 13F
C3025	A D 13F
C3026	B C 13F
C3027	A D 14E
C3028	A D 13E
C3029	A D 13E
C3030	A D 14E
C3031	B C 14F
C3032	B C 11G
C3033	B C 10F
C3034	B C 13G
C3035	B C 13G
C3036	B C 12F
C3037	B C 13F
C3038	B C 11G
C3039	B C 11G
C3040	B C 12D
C3041	B C 13F
C3042	A D 4D
C3049	B C 11D
C3050	B C 12F
C3054	B C 14F
C4001	A D 8E
C4002	B C 10E
C4003	B C 9D
C4004	A D 8G
C4005	B C 8F
C4006	A D 8G
C4007	B C 9E
C4008	B C 9E
C4009	B C 9D
C4010	B C 8F
C4011	B C 10G
C4012	B C 10H
C4013	B C 10F
C4014	B C 10F
C4015	B C 9E
C4016	A D 9G
C4017	B C 9G
C4031	A D 19M
C4032	B C 20N
C5001	A D 1P
C5002	A D 2N
C5003	A D 4P
C5004	A D 1J
C5006	A D 2M
C5101	A D 2M
C5102	A D 2K
C5103	B C 3L
C5104	A D 3M
C5105	A D 3L
C5106	A D 3K
C5107	A D 3K
C5201	A D 1H
C5202	A D 3G
C5203	A D 2G
C5204	A D 3H
C5205	A D 2H
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C5303	A D 4E
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C5306	A D 4D
C5307	A D 4G
C5308	A D 4D
C5309	A D 1E
C5310	A D 2E
C5316	A D 5G
C5317	A D 5E
C5318	A D 6G
C5319	A D 5G
C6002	A D 22O
D7001	A D 15A
D7002	A D 8A
D7003	A D 10A
D7004	A D 7A
D7005	A D 6A
D7006	A D 5A
D7007	A D 2B
D7008	A D 16A
D7009	A D 16A
IC1	B C 12M
IC2	B C 8L
IC4	B C 8H
IC201	A D 19G
IC301	A D 7J
IC3001	B C 11F
IC3002	B C 14F
IC3003	B C 20E
IC3004	A D 5M
IC5301	A D 4F
IC7001	B C 12B
IC7003	A D 8A
J7105	A D 20A
L1	A D 16N
L2	A D 12O
L3	A D 9M
L4	A D 10L
L5	A D 12K
L11	A D 11M
L12	A D 11L
L13	A D 9L
L15	A D 7N
L17	A D 8L
L18	A D 8L
L19	A D 7M
L20	A D 11N
L24	A D 10N
L27	A D 10L
L28	A D 10N
L30	A D 11K
L31	A D 20H
L201	A D 20H
L202	A D 20G
L203	A D 19F
L204	A D 17H
L206	A D 18H
L301	A D 7K
L302	A D 6K
L303	A D 6J
L304	A D 6K
L401	A D 16O
L402	A D 16O
L2001	A D 16M
L2251	A D 15M
L2252	A D 15M
L3001	A D 6M
L3011	A D 6N
L3012	A D 7N
L4001	A D 19M
L5201	A D 3G
L5202	A D 2F
L5301	A D 4D
L6001	A D 21N
L6003	A D 21O
L7201	A D 18N
Q1	B C 14N
Q2	B C 15N
Q3	B C 14O
Q4	B C 14O
Q5	B C 8M
Q6	B C 8M
Q7	B C 8M
Q8	B C 7M
Q9	B C 7M
Q10	B C 11K
Q11	B C 11L
Q14	B C 8K
Q16	B C 11O
Q17	B C 11O
Q18	B C 10N
Q21	B C 9L
Q24	B C 10J
Q25	B C 10K
Q26	B C 10K
Q28	B C 9N
Q38	B C 9N
Q39	B C 10K
Q40	B C 10K
Q41	B C 9K
Q207	B C 18H
Q208	B C 18H
Q301	B C 6K
Q302	B C 8J
Q303	B C 6K
Q404	B C 16N
Q405	B C 16O
Q2001	B C 12O
Q2002	B C 13O
Q2003	B C 12O
Q2004	B C 13O
Q2005	B C 14O
Q2006	B C 10O
Q2051	B C 8A
Q2052	B C 10P
Q2053	B C 11P
Q2054	B C 11P
Q2055	B C 11P
Q2061	B C 6M
Q2062	B C 6M
Q2063	B C 7M
Q2251	B C 15M
Q2252	B C 16M
Q3001	B C 5M
Q3002	A D 4I
Q3003	A D 19I
Q3004	B C 6C
Q3005	B C 6C
Q3007	B C 11D
Q3901	B C 14E
Q4001	B C 8F
Q4002	B C 9G
Q4003	B C 9G
Q5101	A D 2L
Q5102	A D 3L
Q5301	A D 4G
Q5302	A D 2E
Q5303	B C 2E
Q5304	A D 4E
Q5305	B C 3E
Q5306	B C 3F
Q5307	A D 3F
Q5308	B C 4H
Q5309	A D 4F
Q5310	B C 4E
Q5311	B C 5G
Q5312	A D 1F
Q5318	B C 2F
Q5319	B C 1E
Q5320	B C 5E
Q5322	B C 5G
Q5323	A D 3G
Q6030	B C 21K
Q6031	B C 21K
Q6032	B C 22G
Q7201	A D 19N
R1	B C 12N
R2	B C 11O
R3	B C 11O
R4	B C 9M
R5	B C 10M
R6	B C 10M
R7	B C 11L
R8	B C 11J
R9	B C 13J
R21	B C 16O
R22	B C 16N
R23	B C 8M
R24	B C 8L
R25	B C 7M
R26	B C 7M
R27	B C 8M
R28	B C 8L
R29	B C 8M
R30	B C 7M
R31	B C 7M
R32	B C 7M
R33	B C 11N
R35	B C 11O
R36	B C 11J
R37	B C 11K
R38	B C 11L
R39	B C 10K
R40	B C 10K
R41	B C 10K
R42	B C 10K
R46	B C 9L
R48	A D 10L
R51	B C 11J
R54	B C 10N
R62	B C 10N
R65	B C 8K
R68	B C 8K
R70	B C 10N
R75	B C 11N
R77	B C 14P
R79	B C 12K
R88	B C 11J
R90	B C 11N
R91	B C 9J
R92	B C 10N
R93	B C 10N
R104	B C 10N
R111	B C 10L
R113	B C 11O
R117	B C 10K
R118	B C 12K
R201	B C 20G
R202	B C 18F
R203	B C 18F
R204	B C 18F
R208	B C 19F
R209	B C 18G
R210	B C 17G
R211	B C 18G
R212	B C 18H
R213	A D 19H
R216	B C 19G
R220	B C 19H
R224	B C 18H
R225	B C 18H
R226	B C 20F
R301	B C 7K
R302	B C 7K
R303	B C 6K
R304	B C 7K
R305	B C 6K
R306	B C 7J
R307	B C 6K
R308	B C 6J
R309	B C 6J
R310	B C 6J
R311	B C 7J
R312	B C 7J
R313	B C 8J
R314	B C 8J
R315	B C 8J
R316	B C 7J
R317	B C 6L
R318	B C 6K
R321	B C 7K
R326	B C 7J
R327	B C 7J
R328	B C 6J
R329	B C 7J
R401	B C 15O
R402	B C 16O
R403	B C 16O
R404	B C 16O
R405	B C 16O
R406	B C 16O
R407	B C 16N
R408	B C 17O
R2001	B C 14J
R2002	B C 14K
R2003	B C 14K
R2005	B C 15K
R2006	B C 15K
R2007	B C 15K
R2008	B C 14L
R2009	B C 14L
R2010	B C 14L
R2013	B C 13O
R2014	B C 13O
R2015	B C 13O
R2016	B C 13O
R2017	B C 13O
R2018	B C 12O
R2019	B C 12O
R2020	B C 13O
R2021	B C 13O
R2022	B C 10O
R2023	B C 10O
R2051	B C 9O
R2052	B C 9O
R2053	B C 9O
R2054	B C 10P
R2055	B C 9P
R2056	B C 10P
R2057	B C 11P
R2058	B C 11P
R2059	B C 11P
R2060	B C 11P
R2061	B C 6M
R2062	B C 6L
R2063	B C 7M
R2064	B C 7M
R2065	B C 7M
R2201	A D 13J
R2202	B C 14K
R2203	B C 13K
R2204	B C 14K
R2205	B C 14K
R2206	B C 14K
R2208	B C 13K
R2209	B C 14K
R2210	B C 13L
R2211	B C 14K
R2213	A D 7D
R2215	B C 14L
R2217	B C 15K
R2218	B C 15L
R2219	B C 15L
R2220	B C 15L
R2221	B C 16M
R2222	B C 15L
R2223	B C 15L
R2224	B C 15L
R2225	B C 15L
R2226	B C 15L
R2227	B C 16M
R2229	B C 15K
R2231	B C 15L
R2234	B C 15L
R2235	B C 14L
R2236	B C 12K
R2237	B C 12K
R2238	B C 16M
R2239	B C 9D
R2240	B C 9D
R2241	A D 7B
R2242	B C 9D
R3001	B C 10D
R3002	B C 10D
R3003	B C 10D
R3004	B C 11D
R3005	B C 11D
R3006	B C 11D
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R3008	B C 11D
R3009	B C 11D
R3010	B C 11D
R3011	B C 9D
R3012	B C 9D
R3013	B C 10E
R3014	B C 9D
R3015	B C 10D
R3016	B C 10D
R3017	B C 9D
R3018	B C 9D
R3019	B C 10D
R3020	B C 10D
R3021	B C 10D
R3022	B C 10D
R3025	B C 11D
R3026	B C 11D
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R3031	B C 11D
R3032	B C 11D
R3033	B C 11D
R3034	B C 9C
R3035	B C 9C
R3036	B C 9C
R3038	B C 12D
R3039	B C 12D
R3040	B C 12D
R3041	B C 12D
R3042	B C 14C
R3044	B C 15D
R3046	B C 13D
R3047	B C 12E
R3048	B C 14D
R3049	B C 12E
R3050	B C 12E
R3051	B C 12E
R3052	B C 13E
R3053	B C 12E
R3054	B C 15D
R3055	B C 13E
R3056	B C 13E
R3057	B C 14E
R3058	B C 14E
R3059	B C 14E
R3060	B C 13F
R3061	B C 13F
R3062	B C 14E
R3063	B C 14E
R3066	B C 13F
R3069	B C 12F
R3071	B C 14F
R3072	B C 14F
R3073	B C 14F
R3074	B C 12G
R3075	B C 12G
R3076	B C 12G
R3077	B C 13G
R3078	B C 12G
R3079	B C 12G
R3080	B C 11G
R3081	B C 12G
R3083	B C 11G
R3085	B C 11G
R3086	B C 11G
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R3089	B C 11G
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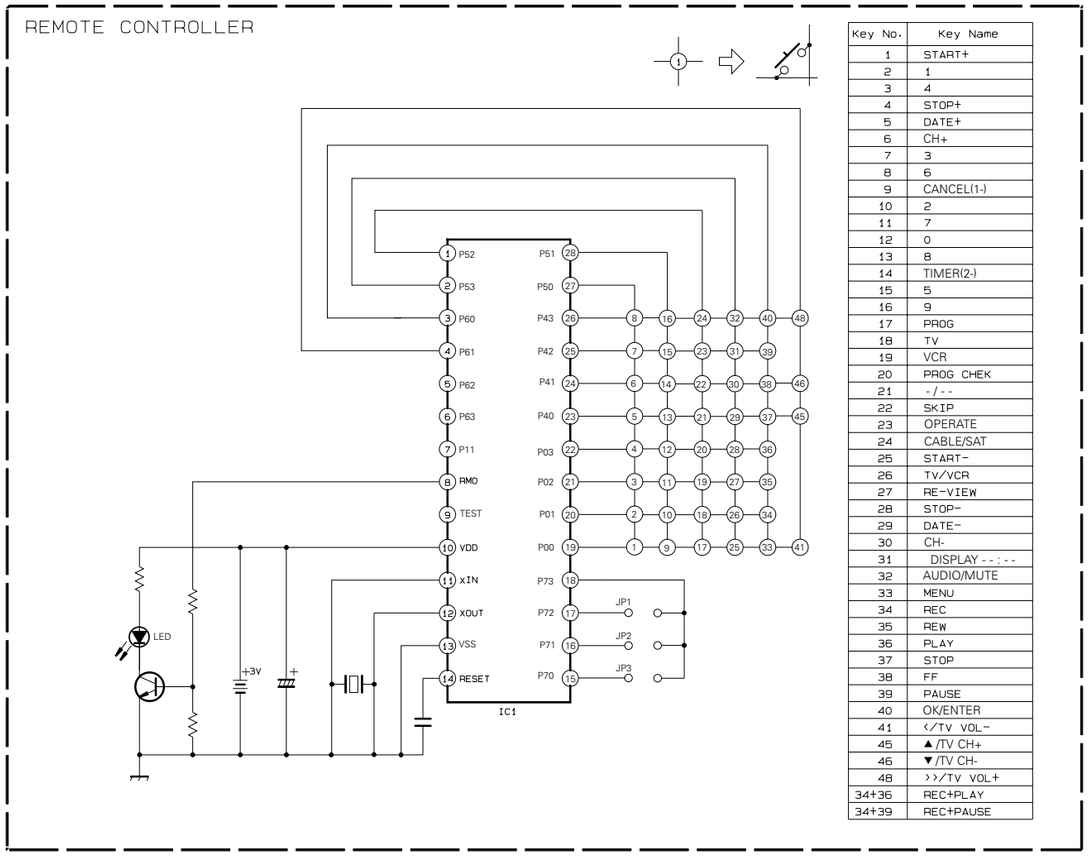
R3091	B C 10G
R3092	B C 10G
R3093	B C 10G
R3094	B C 10I
R3095	B C 14J
R3096	B C 10G
R3097	B C 10I
R3103	B C 9G
R3104	B C 9G
R3105	B C 9G
R3106	B C 9G
R3201	B C 5M
R3202	B C 5M
R3203	B C 5M
R3204	B C 5N
R3205	A D 12I
R3206	B C 8D
R3207	A D 17D
R3208	B C 16E
R3209	B C 16E
R3210	B C 8G
R3211	B C 8G
R3212	A D 7F
R3213	B C 8D
R3214	B C 8D
R3215	B C 8D
R3216	B C 8D
R3217	A D 6E
R3218	A D 6E
R3219	B C 6C
R3220	B C 6C
R3222	B C 6B
R3223	B C 20E
R3224	B C 20E
R3225	B C 17D
R3229	B C 12F
R3230	B C 13F
R3231	B C 14F
R3233	B C 14C
R3234	B C 11D
R3235	B C 7C
R3236	B C 7C
R3237	B C 6B
R3238	B C 6B
R3239	B C 21E
R3240	B C 21E
R3241	A D 7B
R3242	B C 9D
R3246	B C 10D
R3247	B C 10D
R3252	B C 9D
R4001	B C 9H
R4003	B C 9E
R4004	B C 9E
R4005	B C 9E
R4006	B C 9E
R4007	B C 11D
R4008	B C 11D
R4009	B C 10G
R4010	B C 10G
R4011	B C 10H
R4012	B C 10G
R4013	B C 9F
R4015	B C 9H
R4016	B C 10G
R4017	B C 10F
R4018	B C 10F
R4019	B C 10G
R4020	B C 9G
R4021	B C 9G
R5101	A D 3M
R5102	A D 3M
R5103	A D 3M
R5105	A D 3M
R5106	A D 3L
R5107	A D 3K
R5108	B C 3L
R5109	A D 3L
R5110	B C 2L
R5111	B C 3K
R5112	B C 3K
R5301	B C 4H
R5302	B C 4H
R5303	B C 4H
R5304	B C 4I
R5305	B C 2E
R5306	B C 2E
R5307	B C 4H
R5308	B C 2E
R5309	B C 2E
R5310	B C 4E
R5311	B C 3E
R5312	B C 2F
R5313	B C 3F
R5314	B C 4F
R5315	B C 3F
R5316	B C 4F
R5317	B C 4H
R5318	A D 1F
R5319	B C 3E
R5320	B C 4H
R5321	B C 4F
R5322	B C 4E
R5323	B C 4E
R5324	B C 4G
R5325	A D 4G
R5326	A D 1F
R5327	B C 1F
R5328	B C 1F
R5329	B C 2F
R5330	B C 1H
R5332	A D 3H
R5344	B C 3G
R5345	A D 4G
R6020	B C 21N
R6021	B C 21N
R6030	B C 21K
R6031	B C 21K
R6032	B C 21L
R6033	B C 21L
R6050	A D 21O
R6051	B C 21P
R6052	B C 21O
R7001	B C 11A
R7002	B C 11B
R7003	B C 11B
R7004	B C 11B
R7005	B C 11B
R7006	B C 11B
R7007	A D 14B
R7008	A D 14B
R7009	A D 3A
R7010	B C 8A
R7011	B C 11A
R7012	B C 10A
R7013	B C 11B
R7014	B C 10B
R7015	A D 11B
R7016	B C 7B
R7017	B C 15A
R7018	B C 15A
R7160	B C 19B
R7161	B C 19A
R7162	B C 20B
R7163	B C 21B
R7202	B C 18N
R7203	B C 19N
R7204	A D 18N
S3001	A D 18C
S3002	A D 6F
S7001	A D 22B
S7002	A D 18B
S7004	A D 7B
S7006	A D 6B
S7008	A D 5B
S7010	A D 4B
S7011	A D 4B
S7012	A D 3B
S7013	A D 2B
S7014	A D 2B
S7015	A D 1B
S7016	A D 17B
TP106	A D 20K
TP111	A D 20L
TP2253	A D 20K
TP3901	B C 12D
TP3902	B C 12E
TP3903	B C 13E
TP3904	B C 14F
TP3905	B C 13F
TP3906	B C 13E
TP3907	B C 14E
TP3908	B C 14E
TP4001	A D 20K
TP7001	A D 3A
TPGND	A D 4A
CP3002	A D 5J
CP3003	B C 5J
CP4001	A D 19M
CP4002	B C 18M
CP5301	A D 4D
CP5302	A D 4G
CP5303	B C 4D
CP5304	B C 4G
DI7001	A D 12A
F5001	A D 2P
FC5001	A D 2P
FC5002	A D 3P
K2001	B C 13N
K2002	B C 13N
K2003	B C 9O
K2004	B C 9O
K2251	B C 15N
K2252	B C 15N
K2253	B C 15N
K5101	A D 2K
K5102	A D 1N
K5301	A D 4G
K6080	B C 21N
LF5001	A D 4P
LF5002	A D 3N
PC3001	A D 16F
PC3002	A D 8G
PC5101	A D 4M
T2051	A D 9O
T2052	A D 6L
T5001	A D 1K
TU6001	A D 22P
VA5003	A D 2O
X1	A D 11L
X2	A D 11L
X3001	A D 13F
X3002	A D 13F

4.16 REMOTE CONTROLLER SCHEMATIC DIAGRAM

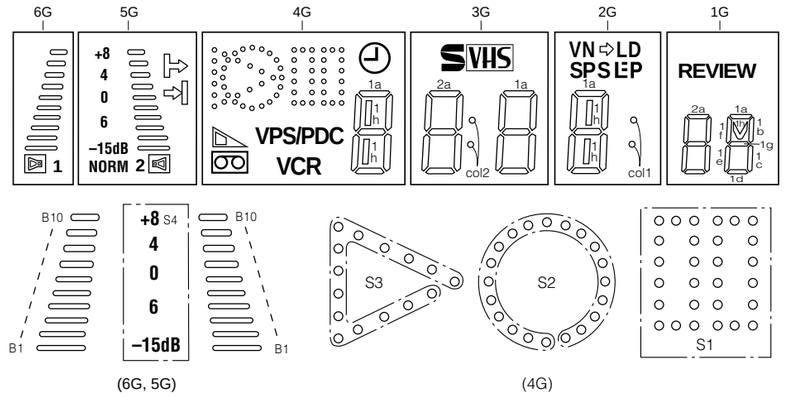
NOTES:
1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
   Avoid replacing individual parts.
   Replace the entire unit only.



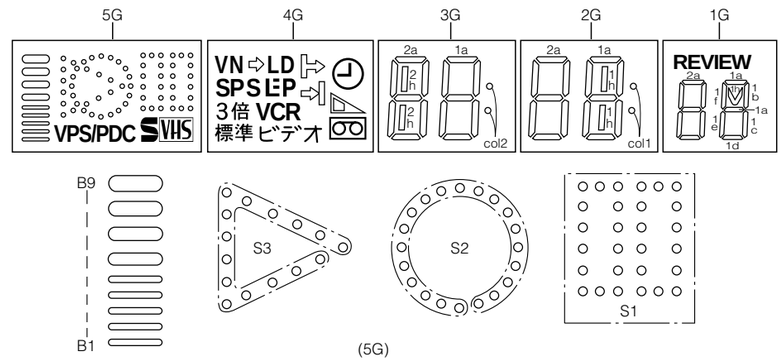
Key No.	Key Name
1	START+
2	1
3	4
4	STOP+
5	DATE+
6	CH+
7	3
8	6
9	CANCEL(1-)
10	2
11	7
12	0
13	8
14	TIMER(2-)
15	5
16	9
17	PROG
18	TV
19	VCR
20	PROG CHEK
21	-/--
22	SKIP
23	OPERATE
24	CABLE/SAT
25	START-
26	TV/VCR
27	RE-VIEW
28	STOP-
29	DATE-
30	CH-
31	DISPLAY - - : - -
32	AUDIO/MUTE
33	MENU
34	REC
35	REW
36	PLAY
37	STOP
38	FF
39	PAUSE
40	OK/ENTER
41	</TV VOL-
45	▲/TV CH+
46	▼/TV CH-
48	>>/TV VOL+
34+36	REC+PLAY
34+39	REC+PAUSE

4.17 FDP GRID ASSIGNMENT AND ANODE CONNECTION

[A] (FDP with audio level indicator)



[B] (FDP without audio level indicator)



ANODE CONNECTION [A]

	6G	5G	4G	3G	2G	1G
P 1	—	⇨	S2	1a	1a	1a
P 2	—	⇨	S1	1b	1b	1b
P 3	—	S4	S3	1f	1f	1f
P 4	—	NORM	VPS/PDC	1g	1g	1g
P 5	1	2	◔	1c	1c	1c
P 6	▷	◁	◺	1e	1e	1e
P 7	B10	B10	⊙⊙	1d	1d	1d
P 8	B9	B9	VCR	col2	1h	1h
P 9	B8	B8	1a	2a	col1	2a
P10	B7	B7	1b	2b	⇨	2b
P11	B6	B6	1f	2f	VN	2f
P12	B5	B5	1g	2g	LD	2g
P13	B4	B4	1c	2c	SP	2c
P14	B3	B3	1e	2e	S (SEP)	2e
P15	B2	B2	1d	2d	: (SEP)	2d
P16	B1	B1	1h	SVHS	LP (SEP)	REVIEW

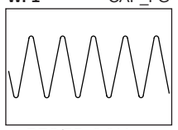
ANODE CONNECTION [B]

	5G	4G	3G	2G	1G
P 1	S2	⇨	1a	1a	1a
P 2	S1	⇨	1b	1b	1b
P 3	S3	3倍	1f	1f	1f
P 4	VPS/PDC	標準	1g	1g	1g
P 5	SVHS	◔	1c	1c	1c
P 6	—	◺	1e	1e	1e
P 7	—	⊙⊙	1d	1d	1d
P 8	B9	VCR	col2	1h	1h
P 9	B8	ビデオ	2a	2a	2a
P10	B7	⇨	2b	2b	2b
P11	B6	VN	2f	2f	2f
P12	B5	LD	2g	2g	2g
P13	B4	SP	2c	2c	2c
P14	B3	S (SEP)	2e	2e	2e
P15	B2	: (SEP)	2d	2d	2d
P16	B1	LP (SEP)	2h	col1	REVIEW

4.18 WAVEFORMS

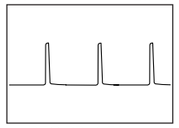
< SYSCON >

WF1 CN3003-2 CAP_FG



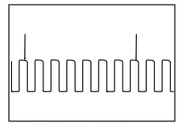
REC/PB 2.2 Vp-p
50 mV/0.5 msec/DIV

WF2 CN3001-4 D.PG



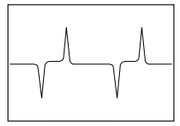
REC/PB 4.5 Vp-p
0.1 V/10 msec/DIV

WF3 CN3001-5 D.FG



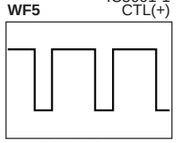
REC/PB 4.5 Vp-p
0.1 V/10 msec/DIV

WF4 TP4001 CTL.P



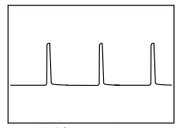
PB 2.2 Vp-p
0.1 V/10 msec/DIV

WF5 IC3001-1 CTL(+)



REC 3.5 Vp-p
0.1 V/10 msec/DIV

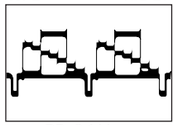
WF6 IC3001-98 C.SYNC



REC/PB 4.5 Vp-p
0.1 V/20 µsec/DIV

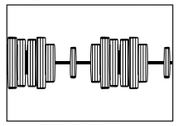
< VIDEO >

WF1 IC1-27



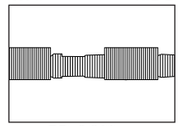
PB 2.1 Vp-p
50 mV/20 µsec/DIV

WF2 IC1-30



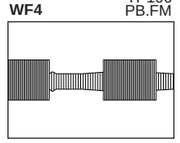
PB 0.68 Vp-p
20 mV/20 µsec/DIV

WF3 IC1-1



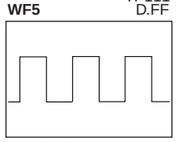
PB 0.3 Vp-p
20 mV/5 msec/DIV

WF4 TP106 PB.FM



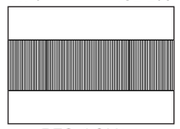
PB 0.5 Vp-p
20 mV/5 msec/DIV

WF5 TP111 D.FF



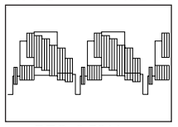
REC/PB 3.4 Vp-p
0.1 V/10 msec/DIV

WF6 IC1-105



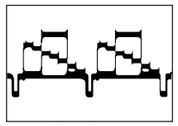
REC 1.8 Vp-p
0.1 V/1 msec/DIV

WF7-1 IC1-14



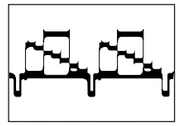
REC 0.52 Vp-p
20 mV/20 µsec/DIV

WF7-2 IC1-14



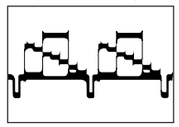
PB 0.5 Vp-p
20 mV/20 µsec/DIV

WF8 IC1-13



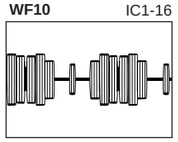
REC/PB 0.5 Vp-p
20 mV/20 µsec/DIV

WF9 IC1-11



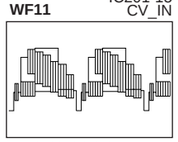
REC/PB 0.5 Vp-p
20 mV/20 µsec/DIV

WF10 IC1-16



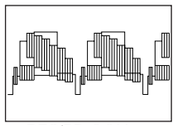
REC 0.58 Vp-p
20 mV/20 µsec/DIV

WF11 IC201-15 CV_IN



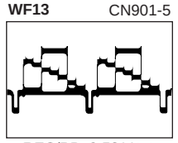
REC/PB 2.2 Vp-p
50 mV/20 µsec/DIV

WF12 IC201-13 CVOUT



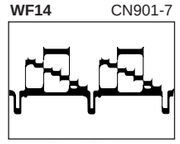
REC/PB 2.2 Vp-p
5 mV/20 µsec/DIV

WF13 CN901-5



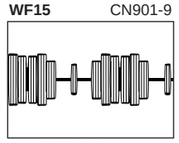
REC/PB 0.52 Vp-p
20 mV/20 µsec/DIV

WF14 CN901-7



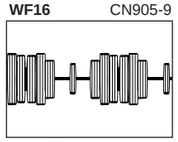
PB 0.5 Vp-p
20 mV/20 µsec/DIV

WF15 CN901-9



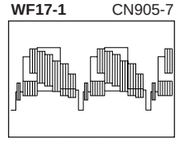
REC 0.6 Vp-p
20 mV/20 µsec/DIV

WF16 CN905-9



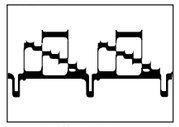
PB 1.3 Vp-p
50 mV/20 µsec/DIV

WF17-1 CN905-7



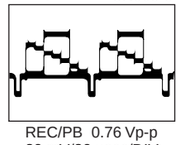
REC 1.7 Vp-p
50 mV/20 µsec/DIV

WF17-2 CN905-7



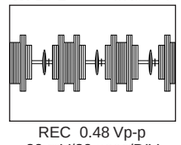
REC/PB 1.7 Vp-p
50 mV/20 µsec/DIV

WF18 CN905-5



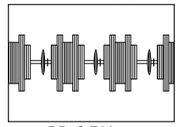
REC/PB 0.76 Vp-p
20 mV/20 µsec/DIV

WF19-1 CN905-3



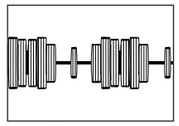
REC 0.48 Vp-p
20 mV/20 µsec/DIV

WF19-2 CN905-3



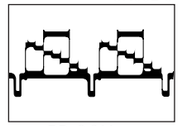
PB 0.7 Vp-p
20 mV/20 µsec/DIV

WF20 CN902-1



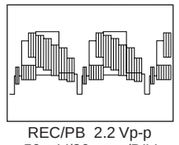
PB 0.6 Vp-p
20 mV/20 µsec/DIV

WF21 CN902-5



PB 2.2 Vp-p
50 mV/20 µsec/DIV

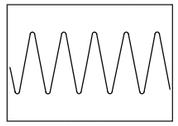
WF22 CN902-9



REC/PB 2.2 Vp-p
50 mV/20 µsec/DIV

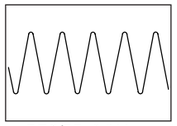
< AUDIO >

WF1 IC1-80



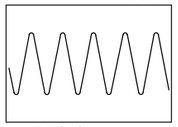
REC 0.2 Vp-p
5 mV/0.5 msec/DIV

WF2 IC1-62



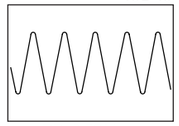
REC/PB 0.9 Vp-p
20 mV/0.5 msec/DIV

WF3 IC1-52



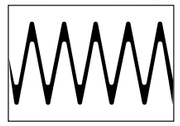
REC 0.11 Vp-p
2 mV/0.5 msec/DIV

WF4 IC1-48



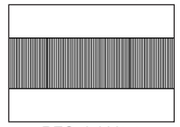
PB 0.58 Vp-p
10 mV/0.5 msec/DIV

WF5 IC1-119



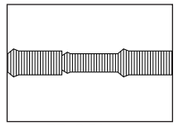
REC 0.7 Vp-p
20 mV/0.5 msec/DIV

WF6 IC1-97



REC 1.1 Vp-p
0.1 V/5 msec/DIV

WF7 TP2253 A.PB.FM



PB 0.5 Vp-p
50 mV/5 msec/DIV

4.19 VOLTAGE CHARTS

<MAIN>

MODE PIN NO.	REC	PLAY
IC1		
1	4.2	2.2
2	2.8	2.9
3	2.6	2.6
4	1.9	1.4
5	1.9	1.4
6	2.4	2.1
7	1.6	0.7
8	0	0
9	2.6	3.0
10	1.9	2.0
11	3.1	3.1
12	2.8	2.4
13	3.1	3.1
14	3.5	2.4
15	0	0
16	2.8	2.8
17	1.5	1.5
18	2.8	2.8
19	0	4.8
20	2.8	2.8
21	1.5	2.0
22	2.8	2.8
23	3.1	2.9
24	4.9	4.9
25	0.3	0.3
26	0	0
27	1.3	2.3
28	2.8	2.5
29	1.9	1.9
30	2.1	2.1
31	0	0
32	2.6	2.6
33	4.9	4.9
34	2.7	2.4
35	4.9	4.9
36	2.6	2.6
37	2.3	2.3
38	-	-
39	1.3	1.3
40	-	-
41	2.7	2.7
42	2.2	2.2
43	0	0
44	2.1	2.1
45	4.6	4.6
46	4.1	4.1
47	2.9	2.9
48	2.6	2.6
49	5.0	5.0
50	2.5	2.5
51	2.8	2.8
52	2.3	2.3
53	2.3	2.3
54	2.6	2.6
55	2.2	2.2
56	0.5	0.5
57	2.3	2.3
58	8.3	8.3
59	4.6	4.6
60	4.1	4.1
61	4.2	4.2
62	4.2	4.2
63	2.3	2.3
64	2.3	2.3
65	0.6	0.6
66	3.1	3.1
67	4.2	4.2
68	4.2	4.2
69	2.3	2.3
70	0	0
71	0.2	0.2
72	0.2	0.2
73	0.3	0.3
74	2.3	2.3
75	2.5	2.5
76	0	0
77	2.6	2.6
78	0.3	0.3
79	0.3	0.3
80	0.2	0.2
81	2.3	2.3
82	0	0.7
83	0	0
84	2.3	2.3
85	2.3	2.3
86	2.3	2.3
87	1.6	1.8
88	2.3	2.3
89	2.3	2.3
90	2.3	2.3
91	0.1	0
92	0	0
93	0	2.4
94	0	1.8
95	0	0
96	2.6	2.3
97	2.6	2.3
98	2.6	2.3
99	4.9	4.9
100	4.9	4.9
101	0	0
102	0	0
103	0	0
104	2.3	2.3
105	2.3	2.3
106	2.4	2.4
107	4.9	4.9
108	0	0
109	0	0
110	0	0
111	0	1.8
112	2.5	2.5
113	0.7	0.7
114	0	0
115	2.5	2.5
116	2.5	2.5
117	2.5	2.5
118	0	0
119	2.5	2.5
120	4.5	4.5
IC201		
1	0	0
2	2.6	2.6
3	5.0	5.0
4	0	0
5	0	0
6	2.4	2.4
7	2.4	2.4
8	4.9	4.9
9	3.9	3.9
10	4.6	4.6
11	3.0	3.0
12	4.8	4.8
13	2.5	2.5
14	0	0
15	2.6	2.6
16	0.8	0.1
17	4.9	4.9
18	2.9	2.9
19	0	0
20	4.5	4.5
21	4.9	4.9
22	3.5	3.5
23	4.9	4.9
24	4.9	4.9
IC3001		
1	2.5	2.5
2	0	0
3	2.5	2.5
4	2.4	2.4
5	0	1.5
6	2.4	2.4
7	2.4	2.4
8	2.4	2.4
9	4.8	4.8
10	4.8	4.8
11	0	0
12	0	0
13	0	2.0
14	4.4	4.4
15	4.9	4.9
16	0.6	0.6
17	4.0	4.0
18	0	0
19	3.1	3.1
20	4.5	4.5
21	3.8	3.8
22	0.2	1.9
23	0	0
24	4.8	4.8
25	0	0
26	4.9	4.9
27	4.9	4.9
28	4.9	4.9
29	4.9	4.9
30	0	0
31	4.9	4.9
32	4.9	4.9
33	0	0
34	4.9	4.9
35	0	0
36	0	0
37	0	0
38	0	4.9
39	4.0	4.0
40	0	0
41	4.8	4.8
42	4.8	4.8
43	0	0
44	0	0
45	4.9	4.9
46	0	0
47	2.8	2.8
48	0	0
49	4.1	4.1
50	4.6	4.6
51	1.3	1.3
52	1.3	1.3
53	4.2	4.2
54	5.0	5.0
55	5.0	5.0
56	4.9	4.9
57	0	0
58	4.9	4.9
59	0	0
60	4.9	4.9
61	4.9	4.9
62	0	0
63	0	0
64	1.3	1.3
65	1.1	1.1
66	4.9	4.9
67	2.5	2.5
68	0	0
69	2.4	2.4
70	3.3	3.3
71	4.9	4.9
72	4.9	4.9
73	4.9	4.9
74	0	0
75	4.4	4.4
76	4.4	4.4
77	4.9	0
78	0	0
79	0	0
80	0	0
81	4.9	4.9
82	4.9	4.9
83	2.4	2.4
84	0	0
85	0	0
86	4.9	4.9
87	4.9	0
88	4.9	4.9
89	0	0
90	0	0
91	0	0
92	4.9	4.9
93	0	0
94	0	0
95	4.9	4.9
96	0	0
97	4.9	0
98	0.8	0.8
99	0	2.2
100	2.4	2.4
101	2.4	2.4
102	1.4	1.4
103	4.9	4.9
104	4.9	0
105	4.9	0
106	0	0
107	0	0
108	1.2	1.2
109	4.9	4.9
110	0	0
111	0	0
112	2.4	2.4
IC3002		
1	4.9	4.9
2	4.9	4.9
3	0	0
4	0	0
IC3003		
1	0	0
2	0	0
3	0	0
4	0	0
5	4.5	4.5
6	4.5	4.5
7	0	0
8	4.9	4.9
IC3004		
1	11.4	11.4
2	0.2	0.2
3	0	0
4	0.2	0.2
5	11.4	11.4
6	11.4	11.4
7	0	0
8	0	0
9	0	0
IC5301		
1	2.4	2.4
2	0	0
3	4.4	4.4
IC7001		
1	4.9	4.9
2	0	0
3	0	0
4	0	0
5	1.6	1.6
6	0	0
7	0	0
8	4.2	4.2
9	3.9	3.9
10	0	0
11	0	0
12	0	0
13	0	0
14	4.9	4.9
15	-	-
16	-	-
17	-	-
18	-	-
19	-	-
20	-	-
21	-	-
22	-	-
23	-	-
24	-	-
25	-	-
26	-	-
27	-26.0	-26.0
28	-	-
29	-	-
30	-	-
31	-	-
32	-	-
33	-	-
34	-	-
35	-	-
36	-	-
37	-	-
38	4.9	4.9
39	4.9	4.9
40	4.9	4.9
41	4.9	4.9
42	0	0
43	0	0
44	2.7	2.7
IC7003		
1	4.9	4.9
2	4.9	4.9
3	0	0
CN1		
1	0	0
2	0	0
3	0	0
4	0	0
5	2.3	2.3
6	2.3	2.3
7	2.3	2.3
8	2.3	2.3
9	2.6	2.3
10	2.6	2.3
11	2.6	2.3
CN501		
1	2.4	2.4
2	0	0
3	2.3	2.3
4	4.9	4.9
5	2.1	2.1
6	0.3	4.5
7	3.3	3.3
8	0	0
9	2.8	2.8
10	0	0
11	4.6	4.6
12	4.1	4.1
13	0	0
14	0	0
15	2.5	2.5
16	0	0
17	0	0
CN901		
1	4.6	4.6
2	4.1	4.1
3	0.3	0.3
4	0	0
5	2.5	2.3
6	0	0
7	3.5	2.4
8	0	0
9	2.8	2.8
10	4.9	4.9
CN902		
1	2.8	2.8
2	0	0
3	0	0
4	2.4	2.1
5	1.3	2.3
6	4.9	4.9
7	0	0
8	0	0
9	2.3	2.3
10	0	0
11	0	0
12	2.4	2.1
CN903		
1	4.7	4.7
2	0	0
3	0	0
4	0	0
5	0.8	0.8
6	10.1	10.1
7	10.1	10.1
8	4.5	4.5
9	4.5	4.5
10	0	0
CN904		
1	0	0
2	4.9	4.9
3	4.9	4.9
4	0	0
CN905		
1	2.4	2.4
2	0	0
3	2.8	2.8
4	0	0
5	3.3	3.3
6	0	0
7	2.1	2.1
8	0	0
9	2.3	2.3
CN2001		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	2.3	2.3
7	2.2	2.2
CN2002		
1	0	0
2	0	0
CN3001		
1	11.4	11.4
2	0	0
3	1.3	1.3
4	0	0
5	1.3	1.3
CN3002		
1	0	0
2	0	0.2
CN3003		
1	0	0
2	2.5	2.5
3	2.4	2.4
4	4.8	4.8
5	0	0
6	4.9	4.9
7	-	-
8	9.2	9.2
CN3004		
1	4.9	4.9
2	4.9	4.9
3	0	0
4	0	0
CN6701		
1	0	0
2	4.6	4.6
3	4.5	4.5
4	4.8	4.8
5	0.3	0.3
6	0.3	0.3
7	5.0	5.0
8	0	0
9	0	0
10	0.1	0
CN7001		
1	4.9	4.9
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	3.0	2.0
9	3.0	3.3

<2D DIGITAL>

MODE PIN NO.	REC	PLAY
IC1201	-	-
CN1201		
1	2.4	2.4
2	0	0
3	2.3	2.3
4	4.9	4.9
5	2.1	2.1
6	0.3	4.5
7	3.3	3.3
8	0	0
9	2.8	2.8
10	0	0
11	4.6	4.6
12	4.1	4.1
13	0	0
14	0	0
15	2.5	2.5
16	0	0
17	0	0

<TERMINAL>

MODE PIN NO.	REC	PLAY
IC501	-	-
IC502		
1	2.0	2.0
2	0.1	4.9
3	3.3	3.3
4	3.4	3.4
5	4.9	4.9
6	2.2	2.2
7	2.0	2.0
8	4.9	0
9	1.4	0
10	2.9	2.9
11	2.9	2.9
12	2.9	2.9
13	0	0
14	2.8	2.8
15	2.8	2.8
16	1.9	1.9
17	2.0	2.0
18	1.9	1.9
IC901	-	-
CN911		
1	4.6	4.6
2	4.1	4.1
3	0.3	0.3
4	0	0
5	2.5	2.3
6	0	0
7	3.5	2.4
8	0	0
9	2.8	2.8
10	4.9	4.9
CN912		
1	2.8	2.8
2	0	0
3	0	0
4	2.4	2.1
5	1.3	2.3
6	4.9	4.9
7	0	0
8	0	0
9	2.3	2.3
10	0	0
11	0	0
12	2.4	2.1
CN913		
1	4.7	4.7
2	0	0
3	0	0
4	0	0
5	0.8	0.8
6	10.1	10.1
7	10.1	10.1
8	4.5	4.5
9	4.5	4.5
10	0	0
CN914		
1	0	0
2	4.9	4.9
3	0	0
4	0.2	0.2
5	0	0.2
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
CN915		
1	2.4	2.4
2	0	0
3	2.8	2.8
4	0	0
5	3.3	3.3
6	0	0
7	2.1	2.1
8	0	0
9	2.3	2.3
CN916		
1	0	0
2	0	0
3	0	0
4	0	0

<DEMOD>

MODE PIN NO.	REC	PLAY
IC6701		
1	4.3	4.3
2	1.5	1.5
3	1.5	1.5
4	0	0
5	2.0	2.0
6	1.9	1.9
7	0.2	0.2
8	0	0
9	0	0
10	3.6	3.6
11	3.6	3.6
12	4.5	4.5
13	4.5	4.5
14	2.2	2.2
15	2.1	2.1
16	0	0
17	0.3	0.3
18	0.3	0.3
19	4.5	4.5
20	0	0
21	0.3	0.3
22	4.7	4.7
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	2.4	2.4
31	2.4	2.4
32	0	0
33	4.7	4.7
34	3.8	3.8
35	0	0
36	2.4	2.4
37	0	0
38	0	0
39	0	0
40	0	0
41	0	0
42	2.5	2.5
43	2.4	2.4
44	0	0
CN6701		
1	0	0
2	4.5	4.5
3	4.5	4.5
4	4.8	4.8
5	0.2	0.2
6	0.2	0.2
7	4.8	4.8
8	0	0
9	0	0
10	0	0

<S-JACK>

MODE PIN NO.	REC	PLAY
CN7108		
1	0	0
2	0	0
3	0	0
4	0	0

<ADV.JOG>

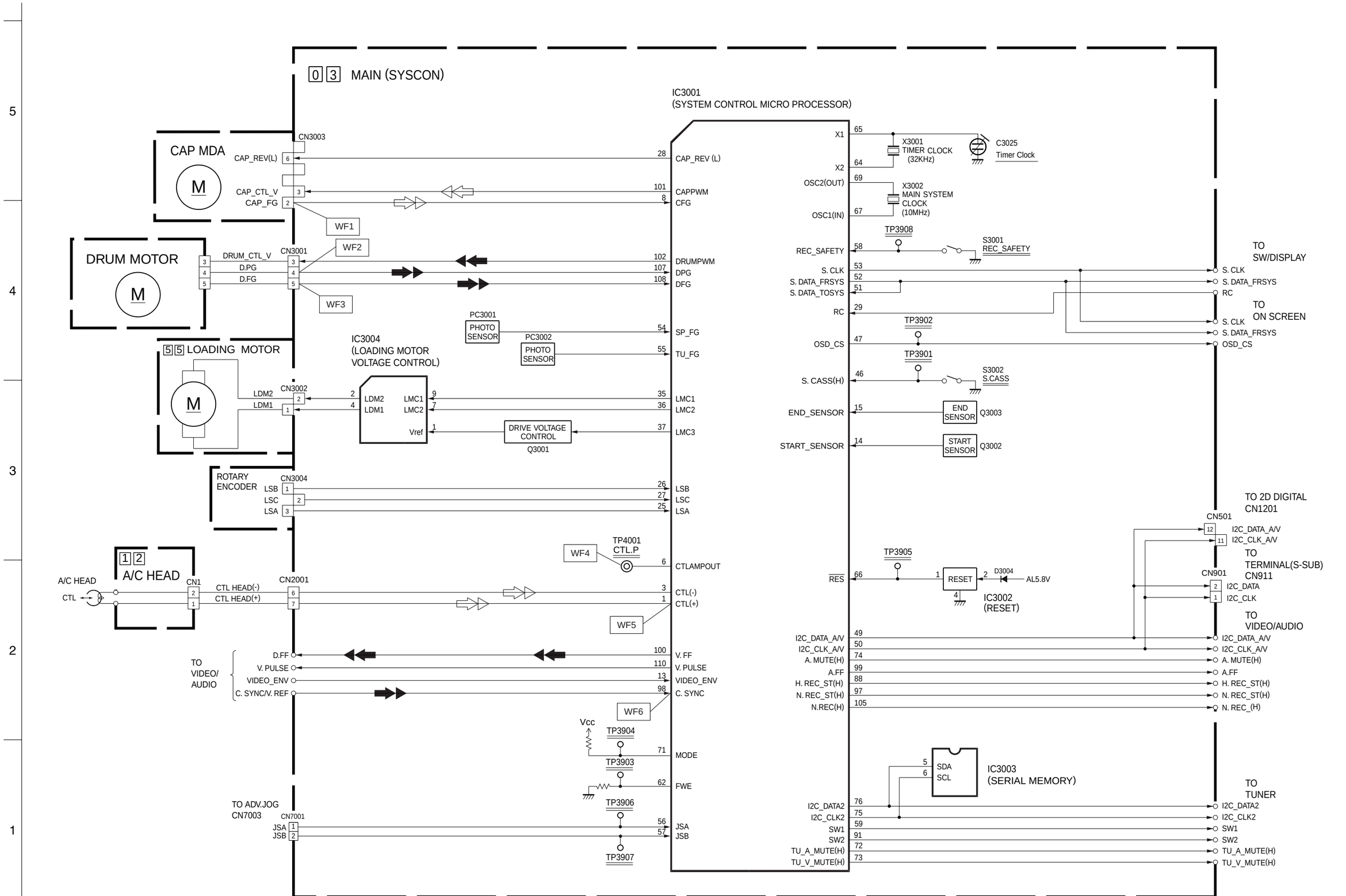
MODE PIN NO.	REC	PLAY
CN7003		
1	3.0	3.3
2	3.0	2.0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0
9	4.9	4.9

4.20 CPU PIN FUNCTION

<SYSCON IC3001>

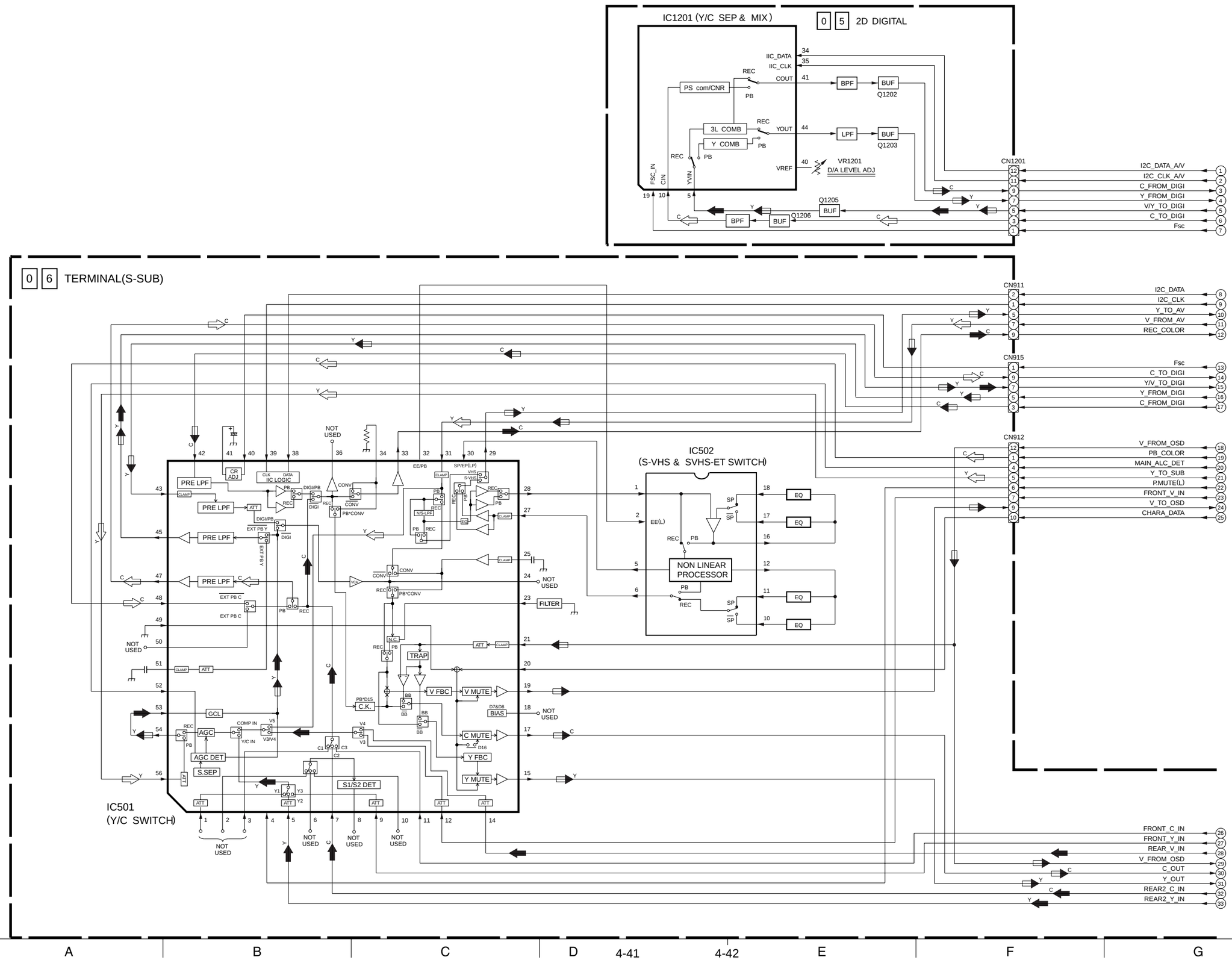
PIN NO.	LABEL	IN/OUT	FUNCTION
1	CTL(+)	IN/OUT	CTL(+) SIGNAL
2	SVSS	-	GND
3	CTL(-)	IN/OUT	CTL(-) SIGNAL
4	CTLBIAS	-	CTL BIAS VOLTAGE
5	CTLFB	IN	CTL PULSE FEEDBACK
6	CTLAMPOUT	OUT	CTL PULSE OUTPUT
7	CTLSMTIN	IN	CTL PULSE INPUT
8	CFG	IN	CAPSTAN FG PULSE INPUT
9	SVCC	-	SYSTEM POWER
10	AVCC	-	SYSTEM POWER FOR ANALOG CIRCUIT
11	NORM/MESEC/S	IN	SVHS MODE:H
12	SECAM_DET	IN	NC
13	VIDEO_ENV	IN	AUTO TRACKING DETECT/INPUT THE AVERAGE OF PLAYBACK VIDEO SIGNAL
14	START_SENSOR	IN	START SENSOR
15	END_SENSOR	IN	END SENSOR
16	IND(L)	IN	AUDIO INPUT(LCH) FOR THE AUDIO INDICATOR
17	PROTECT	IN	DETECTION SIGNAL FOR SW POWER SUPPLY
18	SCR_ID	IN	SCRAMBLE CONTROL INPUT (SCRAMBLE:H)
19	IND(R)	IN	AUDIO INPUT(LCH) FOR THE AUDIO INDICATOR
20	AFC	IN	TUNING CHECK
21	RF AGC	IN	CHANGES IN ATS+IC OUTPUT AS CAUSED BY CHANGES IN RECEIVER SENSITIVITY WHEN THE SAME CHANNEL IS RECEIVED MORE THAN ONCE ARE INPUT.
22	A.ENV/ND(L)	IN	AUDIO PB FM ENV.INPUT/NON HiFi MODE:L
23	AVSS	-	GND FOR ANALOG CIRCUIT
24	CTL_GAIN	OUT	CONTROL AMP OUT FREQUENCY RESPONSE SWITCHING
25	LSA	IN	MECHANISM MODE DETECT(A)
26	LSB	IN	MECHANISM MODE DETECT(B)
27	LSC	IN	MECHANISM MODE DETECT(C)
28	CAP_REV(L)	OUT	CAPSTAN MOTOR REVERSE CONTROL (FWD:H/REV:L)
29	RC	IN	REMOTE CONTROL DATA INPUT
30	LOCK(L)	IN	TUNING PLL LOCK DETECT:L
31	P50_IN	IN	CONTROL SIGNAL FOR TV LINK
32	R.PAUSE	-	NC
33	P50_OUT	OUT	CONTROL SIGNAL FOR TV LINK
34	P.SAVE(L)	OUT	POWER SAVE:L
35	LMC1	OUT	LOADING MOTOR DRIVE(1)
36	LMC2	OUT	LOADING MOTOR DRIVE(2)
37	LMC3	OUT	LOADING MOTOR DRIVE(3)
38	SB_G(PWM)	OUT	VOLTAGE CONTROL SIGNAL FOR VIDEO FREQUENCY RESPONSE
39	STB/TEST	OUT	STROBE SIGNAL (FOR FDP DRIVER)
40	POWER_DET	IN	DETECTION SIGNAL FOR POWER DOWN OF AC POWER SUPPLY
41	P.CTL(H)	OUT	CONTROL SIGNAL FOR SWITCHING POWER SUPPLY
42	SP(H)	-	NC
43	VSS	-	GND
44	RMO	-	NC
45	VCC	-	SYSTEM POWER
46	S.CASS(H)	IN	DETECTION SIGNAL FOR SVHS CASSETTE (SVHS:H)
47	OSD_CS	OUT	CHIP SELECT FOR THE ON-SCREEN IC
48	ET_PB(H)	-	NC
49	I2C_DATA_A/V	IN/OUT	SERIAL DATA TRANSFER OUTPUT FOR THE VIDEO/AUDIO IC
50	I2C_CLK_A/V	OUT	SERIAL DATA TRANSFER CLOCK FOR THE VIDEO/AUDIO IC
51	S.DATA_TOSYS	IN	SERIAL DATA TRANSFER OUTPUT FROM THE ON-SCREEN IC TO THE FDP DRIVER
52	S.DATA_FRSYS	OUT	SERIAL DATA TRANSFER OUTPUT FROM THE FDP DRIVER TO THE ON-SCREEN IC
53	S.CLK	OUT	SERIAL DATA TRANSMISSION CLOCK FROM THE FDP DRIVER TO THE ON-SCREEN IC
54	SP_FG	IN	DETECTION SIGNAL FOR SUPPLY REEL ROTATION/TAPE REMAIN
55	TU_FG	IN	DETECTION SIGNAL FOR TAKE-UP REEL ROTATION/TAPE REMAIN
56	JSA	IN	INPUT FOR THE JOG SHUTTLE
57	JSB	IN	INPUT FOR THE JOG SHUTTLE
58	REC_SAFETY	IN	REC SAFETY SWITCH DETECT (SW ON:L)
59	SW1	OUT	TUNER SYSTEM MODE:H
60	TU_CLK	OUT	CLOCK FOR DATA TRANSFER TO THE TUNER UNIT
61	TU_DATA	OUT	TUNING DATA
62	FWE	OUT	FLASH WRITE ENABLE
63	NMI(L)	-	NC
64	X2	-	TIMER CLOCK (32.768KHz)
65	X1	-	TIMER CLOCK (32.768KHz)
66	RES(L)	-	RESET TERMINAL (RESET ON:L)
67	OSC1(IN)	-	MAIN SYSTEM CLOCK(10MHz)
68	VSS	-	GND
69	OSC2(OUT)	-	MAIN SYSTEM CLOCK(10MHz)
70	VCC/VCL	-	SYSTEM POWER
71	MODE	IN	FWE MODE
72	TU_A_MUTE(H)	OUT	TUNER AUDIO MUTE CONTROL (MUTE:H)
73	TU_V_MUTE(H)	OUT	TUNER VIDEO CONTROL (MUTE:H)
74	A.MUTE(H)	OUT	AUDIO MUTE CONTROL (MUTE:H)
75	I2C_CLK2	OUT	SERIAL DATA TRANSFER CLOCK FOR MEMORY IC
76	I2C_DATA2	IN/OUT	SERIAL DATA TRANSFER OUTPUT FOR MEMORY IC
77	FLY_REC(H)	-	NC
78	P.ON_PULSE/3.58 NTSC(L)	OUT	P.ON_PULSE(H)
79	V.UP(H)/V_DOWN(L)/EE(L)	OUT	HIGH SPEED FF/REW TURBO SEARCH:H
80	V.P.CTL	-	NC
81	VHS(H)	OUT	VHS MODE(H)
82	VCC	-	SYSTEM POWER
83	SLOW_P	-	NC
84	VSS	-	GND
85	SP_SHORT(H)	OUT	MODE SELECT
86	LP_SHORT(H)	OUT	MODE SELECT
87	FLY_ON(H)	-	NC
88	H.REC_ST(H)	OUT	HIFI AUDIO SOUND RECORDING START
89	TRICK(H)	-	NC
90	HEAD_SEL	-	NC
91	SW2	OUT	TUNER SYSTEM MODE:L
92	SYNC_DET(H)	IN	DETECTION OF VIDEO SYNC SIGNAL (DETECTED:H)
93	MESECAM(H)	OUT	MESECAM:H
94	SECAM(H)	-	NC
95	PAL_PB(H)	OUT	PAL FM (PB ON:H)
96	SEP_PB(H)	OUT	PAL EP MODE(H)
97	N.REC_ST(H)	OUT	NORMAL AUDIO SOUND RECORDING START
98	C.SYNC	IN	COMPOSITE SYNC
99	A.FF	OUT	AUDIO FF OUTPUT
100	V.FF	OUT	ROTATION DETECTION SIGNAL FOR DRUM MOTOR/TIMING CONTROL SIGNAL FOR REC
101	CAPPWM	OUT	CAPSTAN MOTOR CONTROL
102	DRUMPWM	OUT	DRUM MOTOR CONTROL
103	P.MUTE(L)	OUT	PICTURE MUTE CONTROL(MUTE:L)
104	FULL_E_ON(H)	OUT	FULL ERASE ON:H
105	N.REC(H)	OUT	NORMAL AUDIO REC MODE CONTROL SIGNAL (REC:H)
106	V_DOWN(L)/HI_FF/REW(L)	OUT	NC/HIGH SPEED FF/REW:L
107	DPG	IN	DRUM PICKUP PULSE INPUT (SWITCHING PULSE)
108	DFG	IN	DRUM FG PULSE INPUT
109	VCC	-	SYSTEM POWER
110	V.PULSE	OUT	V.PULSE ADDITION TIMING CONTROL
111	VSS	-	GND
112	CTLREF	-	CTL REFERENCE VOLTA

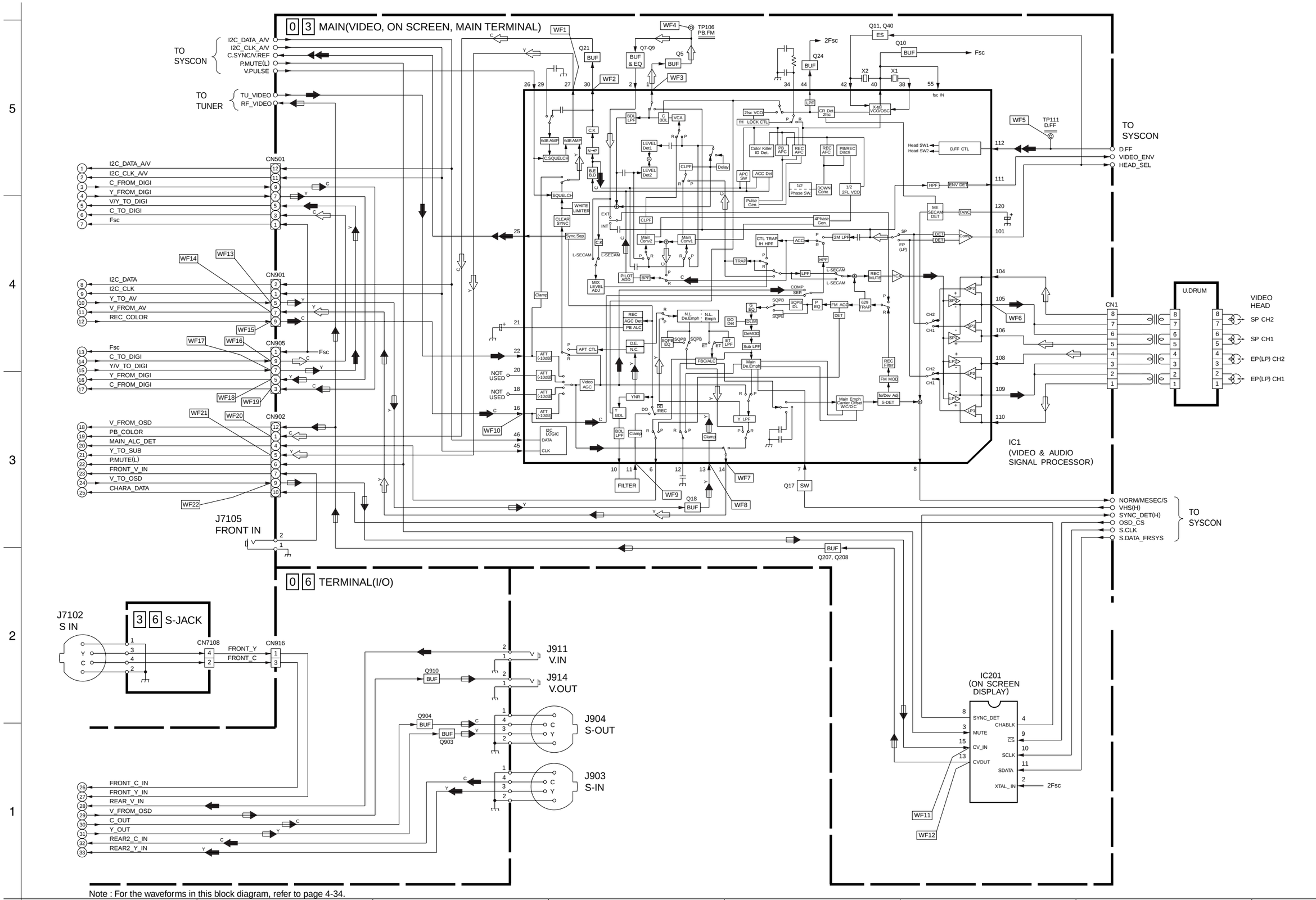
4.21 SYSTEM CONTROL BLOCK DIAGRAM



Note : For the waveforms in this block diagram, refer to page 4-34.

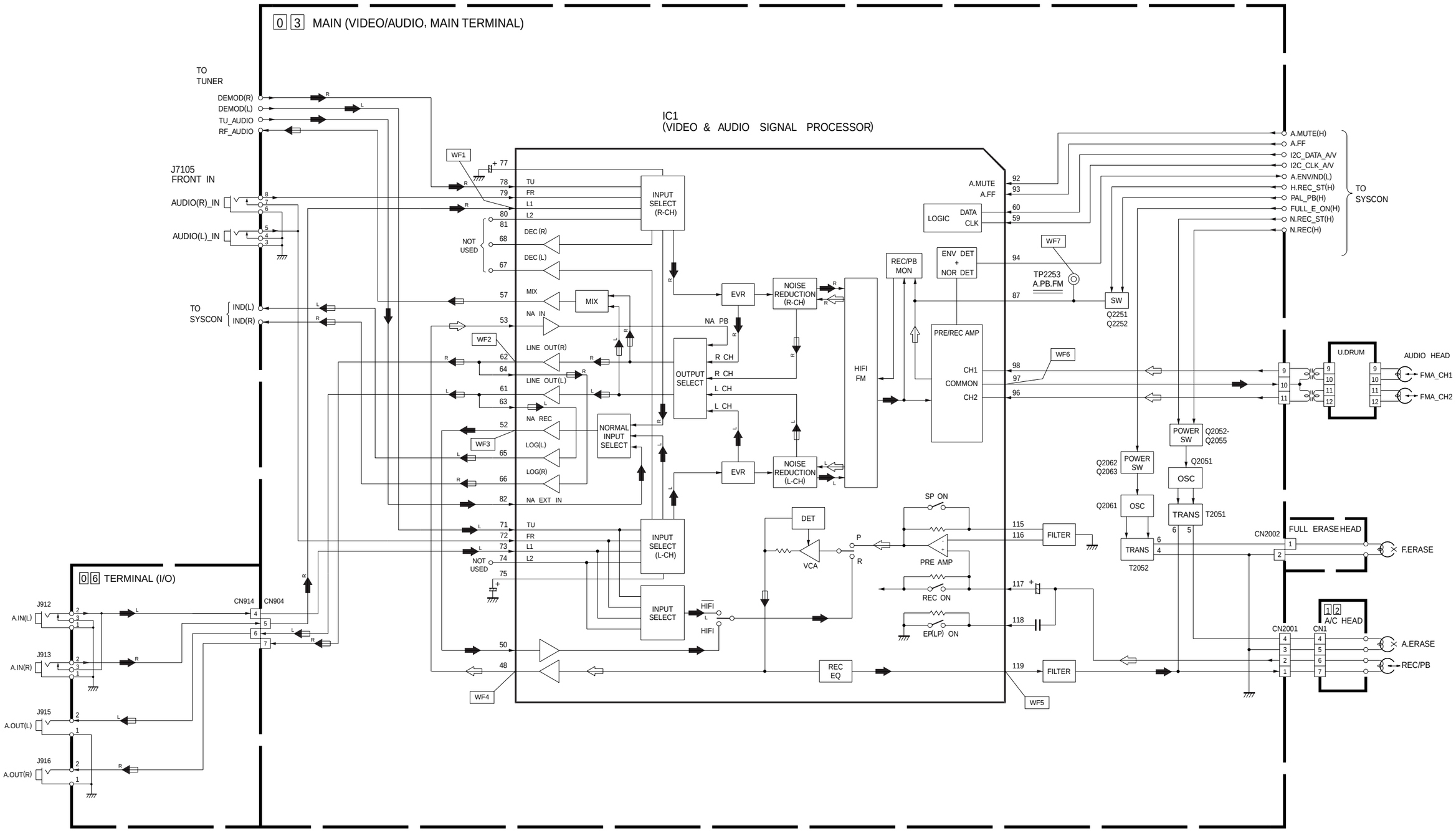
4.22 VIDEO BLOCK DIAGRAM





Note : For the waveforms in this block diagram, refer to page 4-34.

4.23 AUDIO BLOCK DIAGRAM



Note : For the waveforms in this block diagram, refer to page 4-34.

SECTION 5
PARTS LIST

5.1 EXPLODED VIEW

SAFETY PRECAUTION

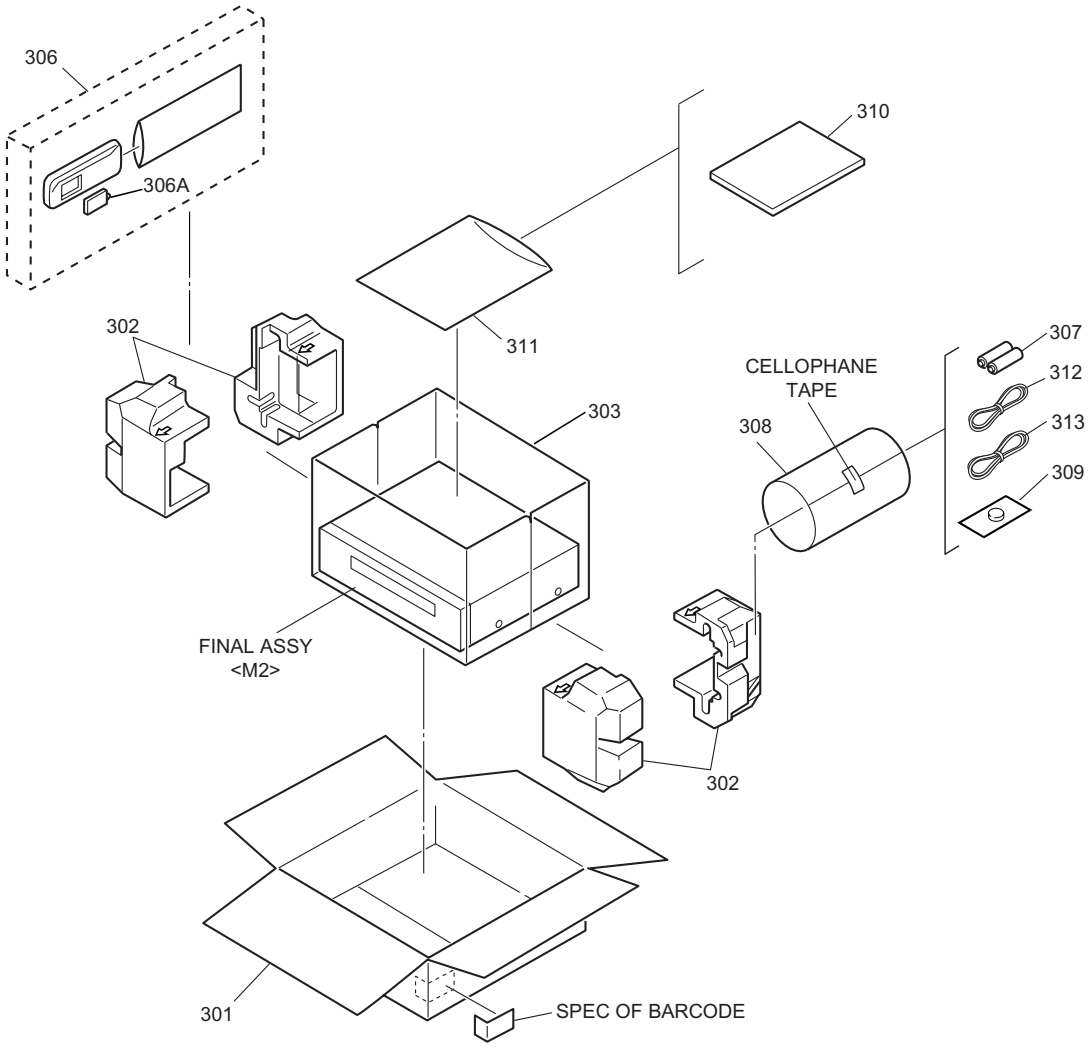
Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

BEWARE OF BOGUS PARTS

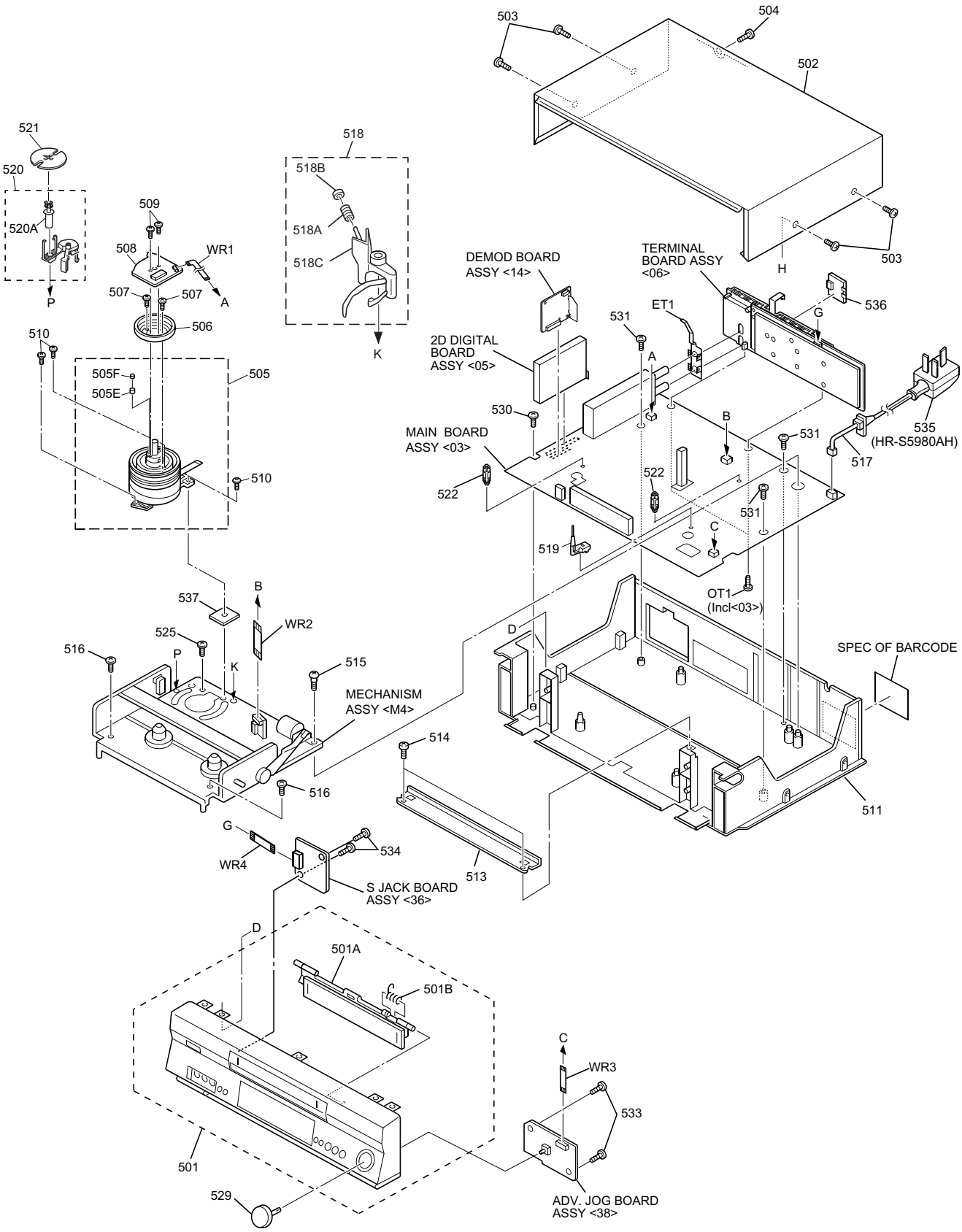
Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.

5.1.1 PACKING AND ACCESSORY ASSEMBLY <M1>

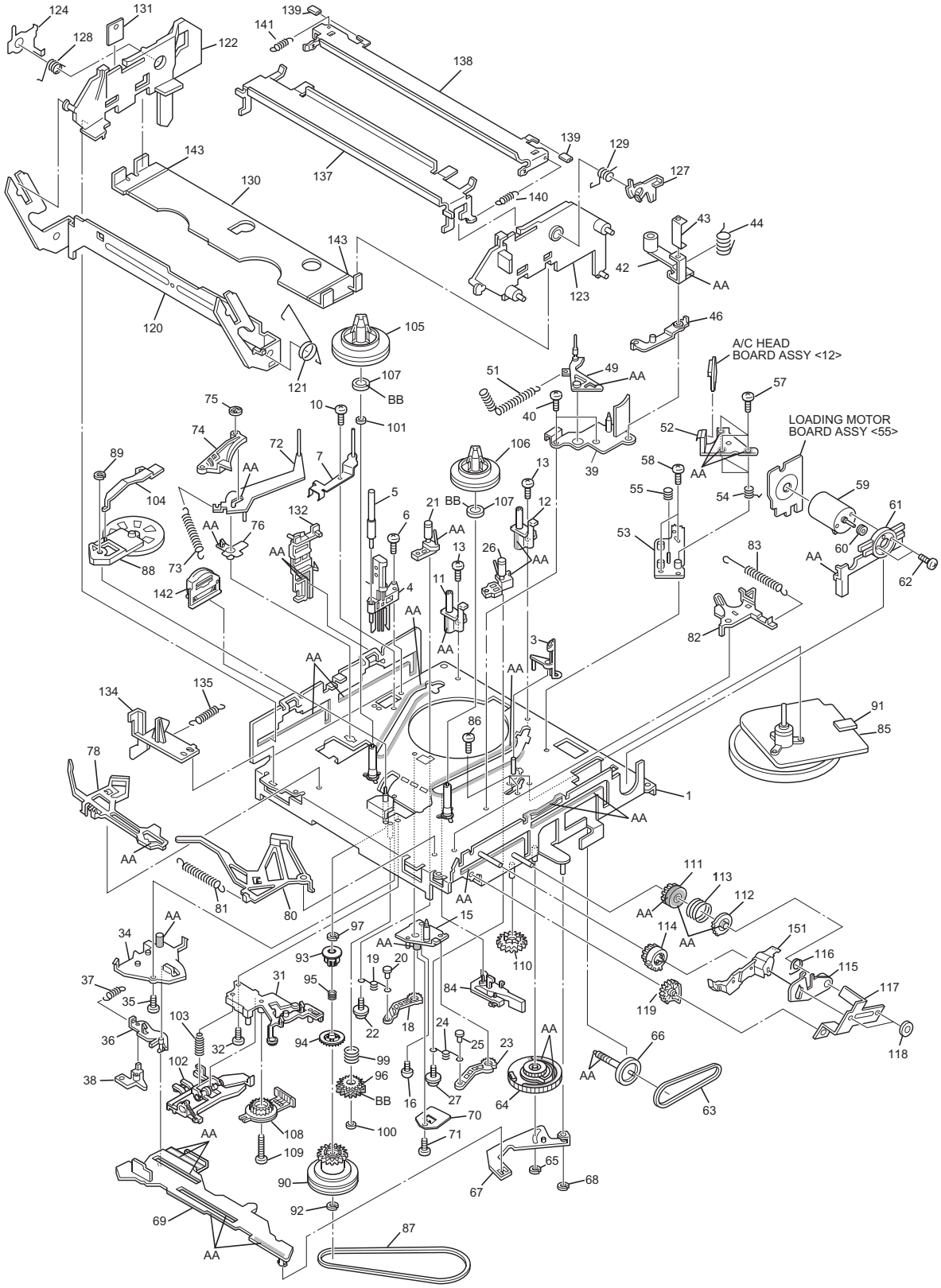
The instruction manual to be provided with this product will differ according to the destination.



5.1.2 FINAL ASSEMBLY <M2>



5.1.3 MECHANISM ASSEMBLY <M4>



Classification	Part No.	Symbol in drawing
Grease	KYODO-SH-P or KYODO-SH-JB	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in **AA** and **BB** indicate lubrication and greasing areas.

5.2 PARTS LIST

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION

****

PACKING AND ACCESSORY ASSEMBLY <M1>

	301	LP31005-004A	PACKING CASE
	302	LP30355-001D	CUSHION ASSY
	303	PQM30021-93	POLY BAG
	306	LP20878-019B	REMOTE CTL UNIT
	306A	LP40610-003A	COVER(BATTERY)
	307	———	BATTERY,X2
	308	QPC02202230P	POLY BAG,CABLE
⚠	309	PECA0903	LI BATTERY
⚠	310	LPT0800-001C	IB(ENGLISH)
⚠	310	LPT0800-002C	IB(CHINESE),AH
	311	QPC02503530P	POLY BAG,INST
	312	PEAC0348-02	RF CABLE
	313	QAM0004-002	S CABLE,ACC.SA

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FINAL ASSEMBLY <M2>

⚠	501	LP10427-030B	F.PANEL ASSY,AH
⚠	501	LP10427-031B	F.PANEL ASSY,AJ
	501A	LP20961-031A	CASSETTE DOOR
	501B	PQ46448	TOR.SPRING
⚠	502	LP10013-051C	TOP COVER
	503	QYTDSF3010R	TAP SCREW,X4,SIDE
	504	QYTDSF3010M	TAP SCREW,REAR
	505	LP20981-011A	DRUM SUB ASSY,FOR SERVIC
	505E	LP40323-001A	CONTACT
	505F	LP30004-014A	COMPRES. SPRING
	506	PDZ0179-1-4	ROTOR ASSY
	507	QYSPSP3006Z	SCREW,X2,FOR ROTOR
⚠	508	QAR0169-003	STATOR ASSY
	509	QYSPSPH2606Z	SCREW,X2,FOR STATOR
	510	QYTDST2610Z	TAP SCREW,X3,DRUM
⚠	511	LP10108-016H	BOTTOM CHASSIS,PJVM
	513	LP30312-001B	BRACKET(CHASSIS)
	514	QYTDSF3010Z	TAP SCREW,X2,FOR BRKT
	515	LP40700-001A	SPECIAL SCREW,FOR MECHA
	516	QYTDSF3010Z	TAP SCREW,X2,FOR MECHA
⚠	517	QMPK070-170-JC	POWER CORD,AH
⚠	517	QMPD190-170-K	POWER CORD,AJ
	518	LP40369-001D	CLEANER ASSY
	518A	PQ46418-1-2	CLEANER ROLLER
	518B	PQ46419-1-2	CLEANER
	518C	LP30407-001D	CLEANER ARM
	519	LP40407-001A	KNOB ASSY,S-SW
	520	LP40370-001F	ROLLER ARM ASSY
	520A	PDM4311A-1	ROLLER ASS'Y
	521	PQ45160	INERTIA PLATE
	522	LP40226-001A	PC SUPPORT,X2
	525	QYTDSF4012Z	TAP SCREW
	529	LP31019-005D	KNOB ASSY
	530	QYTDSF3010Z	TAP SCREW,MAIN
	531	DPSF3010Z	SCREW,X3,MAIN
	533	QYTPSFG2608Z	TAP SCREW,X2,FOR A/J
	534	QYTDSF2608Z	TAP SCREW,X2,FOR S-JAC
⚠	535	QAM0001-001	CONVERSION PLUG,AH
	536	LP30336-001A	CAP
	537	PDM4335-34	SPACER
	WR1	QUQ212-0524CG	FFC WIRE,DRUM
	WR2	WJT0005-001A	E-CARD WIRE,A/C HEAD
	WR3	QUQ112-0914CG	FFC WIRE,ADV
	WR4	QUQ212-0456CG	FFC WIRE,S JACK

****

MECHANISM ASSEMBLY <M4>

1	LP20821-006B	MAIN DECK ASSY
3	LP30492-002B	G.P.GUARD
4	NAH0001-001	FE HEAD
5	LP40701-001A	GUIDE POLE(S)
6	QYTDST2608Z	TAP SCREW,FE HEAD
7	LP40637-002B	T.STUD BASE ASSY
10	QYTDST2606Z	TAP SCREW
11	LP30409-002C	UV CATCHER 2,SUP
12	LP30409-002C	UV CATCHER 2,TU
13	QYTPST2606Z	TAP SCREW,X2,UV CATCHER
15	LP30223-003C	L.A.GEAR SHAFT,L.A.GEAR
16	QYTDST2606Z	TAP SCREW
18	LP30224-001B	L.ARM GEAR(S)
19	LP40099-001A	TORSION ARM,L.ARM
20	LP40100-001A	PIN,TOR.ARM
21	LP40101-006A	P.BASE ASSY(S)
22	QYSPSTG2606Z	TAP SCREW,P.BASE(S)
23	LP40103-002B	L.ARM GEAR(T)
24	LP40099-001A	TORSION ARM,L.ARM
25	LP40100-002A	PIN,TOR.ARM
26	LP40104-006A	P.BASE ASSY(T)
27	QYSPSTG2606Z	TAP SCREW,P.BASE(T)
31	LP20233-004C	R.ENCODER GUIDE
32	QYTPST2606Z	TAP SCREW,R.E.GUIDE
34	LP30226-004E	CTL.PLATE GUIDE
35	QYTPST2605Z	TAP SCREW,C.P.GUIDE
36	LP30249-003B	T.UP LEVER
37	LP30003-006A	TENSION SPRING
38	LP40119-002A	T.UP HEAD
39	LP20234-004B	LID GUIDE
40	QYTDST2606Z	TAP SCREW,X2,LID GUIDE
42	LP40105-003A	P.R.ARM ASSY
43	LP40753-001A	P.R.SHEET 3,P.R.ARM
44	LP40148-002A	TORSION SPRING,P.ROLLER
46	LP40149-001C	P.LEVER ASSY
49	LP40106-007A	GUIDE ARM ASSY
51	LP40134-002A	TENSION SPRING,GUIDE ARM
52	QAH0058-001	AC HEAD,ALPS
53	LP30228-001C	HEAD BASE
54	LP30004-013A	COMPRES. SPRING,X2,AC HEAD
55	LP40737-001B	COMP.SPRING,AC HEAD
57	LP40213-002B	SPECIAL SCREW,X3
58	QYTDST2608Z	TAP SCREW,X2,HEAD BASE
59	QAR0023-001	LOADING MOTOR
60	PQ43546-1-2	MOTOR PULLEY
61	LP30230-003D	MOTOR GUIDE
62	QYTPSP3003Z	SCREW,X2
63	LP30005-003A	BELT,L.MOTOR
64	LP20791-002D	CTL.CAM
65	PQM30017-24	SLIT WASHER,CTL CAM
66	LP40120-001A	WORM GEAR
67	LP40107-002A	LINK LEVER ASSY
68	PQM30017-24	SLIT WASHER,LINK LEVER

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	69	LP10201-003G	CONTROL PLATE
	70	LP40379-001B	CTL BRACKET(1),CTL PLATE
	71	QYTDSF2608M	TAP SCREW,CTL PLATE
	72	LP40108-001A	T.ARM ASSY
	73	LP30003-010A	TENSION SPRING,TENS ARM
	74	LP40109-004A	T.BRAKE ASSY
	75	PQ46302-1-3	ADJUST PIN
	76	LP30232-002B	T.ARM BEARING
	78	LP40532-008C	M.BRAKE(S)ASSY
	80	LP40111-011A	M.BRAKE(T)ASSY
	81	LP30003-026A	TENSION SPRING,M.BRAKE
	82	LP40112-001F	S.BRAKE(T)ASSY
	83	LP40357-002A	TENSION SPRING,S.BRAKE(T)
	84	LP40461-001A	CAP.BRAKE ASSY
	85	QAR0087-005	CAPSTAN MOTOR
	86	QYTDSF2606M	TAP SCREW,X3,C.MOTOR
	87	LP30005-007A	BELT,REEL
	88	LP40114-011B	IDLER ARM ASSY
	89	LP30016-001A	SLIT WASHER
	90	LP40593-003C	CLUTCH UNIT 3
	91	LP30002-097A	SPACER
	92	PQM30017-47	SLIT WASHER,CLUTCH
	93	LP30696-002A	CLUTCH GEAR 4
	94	LP30697-003A	COUPLING GEAR
	95	LP40554-002A	COMP. SPRING
	96	LP40442-001A	DIRECT GEAR
	97	LP30017-019A	SPACER,C.GEAR 1
	99	LP40483-002A	COMP.SPRING,D.GEAR
	100	LP30016-001A	SLIT WASHER,D.GEAR
	101*	LP30016-001A	SLIT WASHER
	102	LP40484-001J	CHANGE LEV.ASSY
	103	LP40512-002B	COMP. SPRING,R.E.GUIDE
	104	LP30236-002C	IDLER LEVER
	105	LP20237-001B	REEL DISK(S),CUT REQ.
	106	LP20238-001B	REEL DISK(T),CUT REQ.
	107	LP30017-015A	SPACER,X2
	108	QSW0554-003	ROTARY ENCODER
	109	QYTPST2620Z	TAP SCREW,R.ENCODER
	110	LP30237-002B	CASSETTE GEAR
	111	LP30239-002G	LIMIT GEAR(1)
	112	LP30240-002G	LIMIT GEAR(2)
	113	LP40136-001E	TORSION SPRING,LIMIT GEAR
	114	LP30242-002C	RELAY GEAR
	115	LP30339-002F	OPENER GUIDE
	116	LP40545-001A	TORSION SPRING
	117	LP40214-001B	C.H.BRACKET
	118	PQM30017-47	SLIT WASHER,X2,CH BRACKET
	119	LP30243-002A	DRIVE GEAR
	120	LP20240-001G	DRIVE ARM
	121	LP40137-001A	TORSION SPRING,DRIVE ARM
	122	LP10081-002P	SIDE HOLDER(L)
	123	LP10082-002V	SIDE HOLDER(R)
	124	LP30255-006B	LOCK LEVER(L)
	127	LP30256-001H	LOCK LEVER(R)
	128	LP40168-003A	TOR.SPRING(L),L.LEVER(L)
	129	LP40218-001B	TOR.SPRING(R),L.LEVER(R)
	130	LP30257-001G	CASSETTE HOLDER
	131	PQ40919-30	SPACER,FOR EARTH
	132	LP30244-002H	GUIDE RAIL
	134	LP30245-002F	REC SAFETY LEVER
	135	LP30003-004A	TENSION SPRING,REC SAFETY
	137	LP20578-001C	TOP GUIDE
	138	LP30500-001D	HOLD PLATE
	139	LP40450-003A	PAD,X2,HOLD PLATE
	140	LP30003-025B	TENSION SPRING,H.PLATE(TU)
	141	LP30003-024A	TENSION SPRING,H.PLATE(SP)
	142	LP40481-003A	ROLLER CAM ASSY
	143	LP30019-014A	PAD,X2,HIMERON
	151	LP20324-003B	DOOR OPENER

* 101 is deleted depending on the mechanism assembly.

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION

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MAIN BOARD ASSEMBLY <03>

PW1 MAIN BOARD ASS'Y<03> includes the parts shown in the following.
PW1 2D DIGITAL BOARD ASS'Y<05>
PW1 TERMINAL BOARD ASS'Y<06>
PW1 DEMOD BOARD ASS'Y<14>

	PW1	LPA10140-10A	MAIN BOARD ASSY
	IC1	JCP8050-MSA	IC,VIDEO
	IC201	LC74789N-9830	IC (OSD)
	IC3001	HD6432194SAD08F	IC(MCU),JVC S1AM
	IC3001	or HD64F2194CFD08	IC(MCU),JVC S1AM
	IC3002	IC-PST3427U-X	IC,RESET(4PIN)
	IC3003	*(REFER TO BELOW)	IC,EEPROM(32K)
	IC3004	BA6956AN	IC,L.MDA
	IC5301	L5431-T	IC
	IC5301	or MM1431AT-T	IC
	IC5301	or UTCTL431-T	IC
	IC7001	PT6312LQ	IC
	IC5301	or UPD16312GB/H/	IC
	IC7003	GP1U291Q	IR DETECT UNIT
	IC7003	or PNA4652M00YC	IR DETECT UNIT
	IC7003	or PIC-28143LJ	IR DETECT UNIT
	IC7003	or PIC-37143LJ	IR DETECT UNIT
	IC7003	or GP1UA291QK	IR DETECT UNIT
	Q1	2SC4081/S/-X	TRANSISTOR,SP1 SHORT
	Q2	2SC4081/S/-X	TRANSISTOR,SP2 SHORT
	Q3	2SC4081/S/-X	TRANSISTOR,EP1 SHORT
	Q4	2SC4081/S/-X	TRANSISTOR,EP2 SHORT
	Q5	2SB1218A/QR/-X	TRANSISTOR,PB FM BUF
	Q5	or 2SA1576A/QR/-X	TRANSISTOR
	Q5	or 2PA1576/R/-X	TRANSISTOR
	Q7	2SD1819A/QRS/-X	TRANSISTOR,RF EQ(S)
	Q7	or 2SC4081/QRS/-X	TRANSISTOR
	Q7	or 2PC4081/R/-X	TRANSISTOR
	Q8	2SD1819A/QRS/-X	TRANSISTOR,RF EQ(S)
	Q8	or 2SC4081/QRS/-X	TRANSISTOR
	Q8	or 2PC4081/R/-X	TRANSISTOR
	Q9	2SB1218A/QR/-X	TRANSISTOR,RF EQ(S)
	Q9	or 2SA1576A/QR/-X	TRANSISTOR
	Q9	or 2PA1576/R/-X	TRANSISTOR
	Q10	2SA1576A/QR/-X	TRANSISTOR,FSC BUF
	Q11	DTC144WUA-X	DIGI TRANSISTOR,R-Y REV
	Q11	or UN521E-X	DIGI TRANSISTOR
	Q11	or RN1309-X	DIGI TRANSISTOR
	Q11	or PDTC144WU-X	DIGI TRANSISTOR
	Q17	DTC144WUA-X	DIGI TRANSISTOR,DEMP(S/V)
	Q17	or UN521E-X	DIGI TRANSISTOR
	Q17	or RN1309-X	DIGI TRANSISTOR
	Q17	or PDTC144WU-X	DIGI TRANSISTOR
	Q21	2SB1218A/QR/-X	TRANSISTOR,PB C BUF
	Q21	or 2SA1576A/QR/-X	TRANSISTOR
	Q21	or 2PA1576/R/-X	TRANSISTOR
	Q24	2SB1218A/QR/-X	TRANSISTOR,2FSC BUF
	Q24	or 2SA1576A/QR/-X	TRANSISTOR
	Q24	or 2PA1576/R/-X	TRANSISTOR
	Q38	2SD1819A/QRS/-X	TRANSISTOR
	Q38	or 2SC4081/QRS/-X	TRANSISTOR
	Q38	or 2PC4081/R/-X	TRANSISTOR
	Q39	DTC144WUA-X	DIGI TRANSISTOR,C TRAP NT
	Q39	or UN521E-X	DIGI TRANSISTOR
	Q39	or RN1309-X	DIGI TRANSISTOR
	Q39	or PDTC144WU-X	DIGI TRANSISTOR
	Q40	DTC144WUA-X	DIGI TRANSISTOR,R-Y REV
	Q40	or UN521E-X	DIGI TRANSISTOR
	Q40	or RN1309-X	DIGI TRANSISTOR
	Q40	or PDTC144WU-X	DIGI TRANSISTOR
	Q41	DTC144WUA-X	DIGI TRANSISTOR,C TRAP MS
	Q41	or UN521E-X	DIGI TRANSISTOR
	Q41	or RN1309-X	DIGI TRANSISTOR
	Q41	or PDTC144WU-X	DIGI TRANSISTOR
	Q207	2SB1218A/QR/-X	TRANSISTOR,OSD OUT
	Q207	or 2SA1576A/QR/-X	TRANSISTOR,OSD OUT
	Q207	or 2PA1576/R/-X	TRANSISTOR,OSD OUT
	Q208	2SD1819A/QRS/-X	TRANSISTOR,OSD OUT
	Q208	or 2SC4081/QRS/-X	TRANSISTOR,OSD OUT
	Q208	or 2PC4081/R/-X	TRANSISTOR,OSD OUT
	Q301	DTC114EUA-X	DIGI TRANSISTOR
	Q301	or UN5211-X	DIGI TRANSISTOR
	Q301	or RN1302-X	DIGI TRANSISTOR
	Q301	or PDTC114EU-X	DIGI TRANSISTOR
	Q2001	2SC4081/QRS/-X	TRANSISTOR
	Q2001	or 2SD1819A/QRS/-X	TRANSISTOR
	Q2001	or 2PC4081/R/-X	TRANSISTOR
	Q2002	2SC4081/QRS/-X	TRANSISTOR
	Q2002	or 2SD1819A/QRS/-X	TRANSISTOR
	Q2002	or 2PC4081/R/-X	TRANSISTOR
	Q2003	DTA144WUA-X	DIGI TRANSISTOR
	Q2003	or UN511E-X	DIGI TRANSISTOR
	Q2003	or RN2309-X	D TRANSISTOR
	Q2003	or PDTA144WU-X	DIGI TRANSISTOR
	Q2004	DTC114EUA-X	DIGI TRANSISTOR
	Q2004	or PDTC114EU-X	DIGI TRANSISTOR
	Q2004	or UN5211-X	DIGI TRANSISTOR
	Q2004	or RN1302-X	DIGI TRANSISTOR
	Q2051	2SC4081/QRS/-X	TRANSISTOR
	Q2051	or 2SD1819A/QRS/-X	TRANSISTOR
	Q2051	or 2PC4081/R/-X	TRANSISTOR
	Q2052	2SA1576A/QR/-X	TRANSISTOR
	Q2052	or 2SB1218A/QR/-X	TRANSISTOR
	Q2052	or 2PA1576/R/-X	TRANSISTOR
	Q2053	DTC144WUA-X	DIGI TRANSISTOR
	Q2053	or UN521E-X	DIGI TRANSISTOR
	Q2053	or RN1309-X	DIGI TRANSISTOR
	Q2053	or PDTC144WU-X	DIGI TRANSISTOR
	Q2054	2SA1576A/QR/-X	TRANSISTOR
	Q2054	or 2SB1218A/QR/-X	TRANSISTOR
	Q2054	or 2PA1576/R/-X	TRANSISTOR
	Q2055	DTC144WUA-X	DIGI TRANSISTOR
	Q2055	or UN521E-X	DIGI TRANSISTOR
	Q2055	or RN1309-X	DIGI TRANSISTOR
	Q2055	or PDTC144WU-X	DIGI TRANSISTOR
	Q2061	2SC4081/QRS/-X	TRANSISTOR
	Q2061	or 2SD1819A/QRS/-X	TRANSISTOR
	Q2061	or 2PC4081/R/-X	TRANSISTOR
	Q2062	2SA1576A/QR/-X	TRANSISTOR
	Q2062	or 2SB1218A/QR/-X	TRANSISTOR
	Q2062	or 2PA1576/R/-X	TRANSISTOR
	Q2063	DTC144WUA-X	DIGI TRANSISTOR
	Q2063	or UN521E-X	DIGI TRANSISTOR

* HR-S5980AH : LPN0659-001A-03
HR-S5980AJ : LPN0659-001A-03

The VCR goes to jig RCU mode after replacing the EEPROM and the VCR does not accept some RCU command.
Therefore please set the VCR to the user RCU mode after replacing the EEPROM.
The method of setting the VCR to the user RCU mode is written on the service manual.

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	Q2063	or RN1309-X	DIGI TRANSISTOR
	Q2063	or PDTC144WU-X	DIGI TRANSISTOR
	Q2251	DTA144WUA-X	DIGI TRANSISTOR
	Q2251	or PDTA144WU-X	DIGI TRANSISTOR
	Q2251	or UN511E-X	DIGI TRANSISTOR
	Q2251	or RN2309-X	D TRANSISTOR
	Q2252	DTC114EUA-X	DIGI TRANSISTOR
	Q2252	or PDTC114EU-X	DIGI TRANSISTOR
	Q2252	or UN5211-X	DIGI TRANSISTOR
	Q2252	or RN1302-X	DIGI TRANSISTOR
	Q3001	2SD1819A/QRS/-X	TRANSISTOR,FOR BA6956
	Q3001	or 2SC4081/QRS/-X	TRANSISTOR,FOR BA6956
	Q3001	or 2PC4081/R/-X	TRANSISTOR,FOR BA6956
	Q3002	PTZ-NV16	IC(PHOTO SENSOR,STA.SENSOR
	Q3002	or PTZ-NV16A	IC(PHOTO SENSOR,STA.SENSOR
	Q3003	PTZ-NV16	IC(PHOTO SENSOR,END SENSOR
	Q3003	or PTZ-NV16A	IC(PHOTO SENSOR,END SENSOR
	Q3004	2SD1819A/QRS/-X	TRANSISTOR,POWER DET
	Q3004	or 2SC4081/QRS/-X	TRANSISTOR,POWER DET
	Q3004	or 2PC4081/R/-X	TRANSISTOR,POWER DET
	Q3005	2SD1819A/QRS/-X	TRANSISTOR,SVCC
	Q3005	or 2SC4081/QRS/-X	TRANSISTOR,SVCC
	Q3005	or 2PC4081/R/-X	TRANSISTOR,SVCC
	Q4001	UN5211-X	DIGI TRANSISTOR
	Q4001	or DTC114EUA-X	DIGI TRANSISTOR
	Q4001	or RN1302-X	DIGI TRANSISTOR
	Q4001	or PDTC114EU-X	DIGI TRANSISTOR
	Q5101	2SK2632-CB14	POWER MOS FET
	Q5001	or 2SK2129-LT	POWER MOS FET
	Q5001	or 2SK2632	POWER MOS FET
	Q5001	or 2SK2129	POWER MOS FET
	Q5102	2SD2144S/UV/-T	TRANSISTOR
	Q5302	2SD2375/QP/	POW TRANSISTOR,SW5V
	Q5303	2SD1819A/RS/-X	TRANSISTOR,SW5V
	Q5303	or 2SC4081/RS/-X	TRANSISTOR,SW5V
	Q5303	or 2PC4081/R/-X	TRANSISTOR,SW5V
	Q5304	2SC3616/ML/-T	TRANSISTOR,SW12V
	Q5305	DTA114EUA-X	DIGI TRANSISTOR,SW12V
	Q5305	or UN5111-X	DIGI TRANSISTOR,SW12V
	Q5305	or RN2302-X	D TRANSISTOR,SW12V
	Q5305	or PDTA114EU-X	DIGI TRANSISTOR,SW12V
	Q5306	DTC114EUA-X	DIGI TRANSISTOR,SW12V
	Q5306	or UN5211-X	DIGI TRANSISTOR,SW12V
	Q5306	or RN1302-X	DIGI TRANSISTOR,SW12V
	Q5306	or PDTC114EU-X	DIGI TRANSISTOR,SW12V
	Q5322	DTC114TUA-X	DIGI TRANSISTOR,V.DOWN
	Q5322	or UN5215-X	DIGI TRANSISTOR,V.DOWN
	Q5322	or RN1311-X	D TRANSISTOR,V.DOWN
	Q5322	or PDTC114TU-X	DIGI TRANSISTOR,V.DOWN
	Q5323	2SB927/ST/-T	TRANSISTOR,V.DOWN
	Q6030	2SB1218A/QR/-X	TRANSISTOR
	Q6030	or 2SA1576A/QR/-X	TRANSISTOR
	Q6030	or 2PA1576/R/-X	TRANSISTOR
	D1	DA204U-X	SI DIODE,GND
	D6	MTZJ5.1C-T2	Z DIODE,I2C_DATA
	D11	DAN202U-X	SI DIODE,R-Y REV NT
	D201	1SS133-T2	SI DIODE,OSD CS
	D202	1SS133-T2	SI DIODE,S.CLK
	D203	1SS133-T2	SI DIODE,S.DATA
	D2202	MTZJ8.2C-T2	Z DIODE
	D3001	LNB2301L01VI	IR LED,LED
	D3002	1SS133-T2	SI DIODE,PROTECT
	D3002	or 1SS270A-T2	SI DIODE,PROTECT
	D3003	RD39ES/B3/-T2	Z DIODE,POWER DET
	D3003	or MTZJ39C-T2	Z DIODE,POWER DET
	D3004	11ES2-T2	SI DIODE,(BU5V)
	D3004	or 1A3G-T2	SI DIODE,(BU5V)
	D3005	11ES2-T2	SI DIODE,(AL5V)
	D3005	or 1A3G-T2	SI DIODE,(AL5V)
⚠	D3006	RB721Q-40-T2	SB DIODE,LITHIUM
	D4001	QUY153-050Y	IM BUS WIRE
	D4002	QUY153-050Y	IM BUS WIRE
	D5001	S1WB/A/60-4102	BRIDGE DIODE
	D5001	or S1WB/A/60-X	BRIDGE DIODE
	D5001	or S1WB(A)60F4072X	BRIDGE DIODE
	D5101	AU01-T2	SI DIODE
	D5101	or 1SR153-400-T2	FR DIODE
	D5101	or ERA18-04-T2	FR DIODE
	D5101	or 10ELS4-T2	FR DIODE
	D5102	AU01-T2	SI DIODE
	D5102	or 1SR153-400-T2	FR DIODE
	D5102	or ERA18-04-T2	FR DIODE
	D5102	or 10ELS4-T2	FR DIODE
	D5103	1SS133-T2	SI DIODE
	D5103	or 1SS270A-T2	SI DIODE
	D5105	1SS133-T2	SI DIODE
	D5105	or 1SS270A-T2	SI DIODE
	D5201	AK04-T2	SB DIODE:DC
	D5201	or 11EQS04-T2	SB DIODE:DC
	D5201	or 1S4-T2	SB DIODE:DC
	D5201	or SBO40-T2	SB DIODE:DC
	D5203	AU01Z-T2	FR DIODE
	D5203	or 10ELS2-T2	FR DIODE
	D5204	AU01Z-T2	FR DIODE
	D5204	or 10ELS2-T2	FR DIODE
	D5206	FMB-24	SB DIODE,6V
	D5206	or FSQ05A04B	SB DIODE,6V
	D5206	or YG801C04	SB DIODE,6V
	D5206	or SF5SC4	SB DIODE,6V
	D5206	or SB640FCT	SB DIODE,6V
	D5210	AU01Z-T2	FR DIODE:45V
	D5210	or ERA18-02-T2	FR DIODE:45V
	D5210	or 1SR153-400-T2	FR DIODE:45V
	D5210	or 10ELS2-T2	FR DIODE:45V
	D5210	or PG104RS-T2	FR DIODE:45V
	D5211	AU01Z-T2	FR DIODE:-28V
	D5211	or ERA18-02-T2	FR DIODE:-28V
	D5211	or 1SR153-400-T2	FR DIODE:-28V
	D5211	or 10ELS2-T2	FR DIODE:-28V
	D5211	or PG104RS-T2	FR DIODE:-28V
	D5301	MTZJ15C-T2	Z DIODE
	D5301	or RD15ES/B3/-T2	Z DIODE
	D5302	QUY153-050Y	IM BUS WIRE,SW12V
	D5303	RD5.1JS/B2/-T2	Z DIODE,SW5V
	D5303	or MA4051N/M/-T2	Z DIODE,SW5V
	D5304	1SS133-T2	SI DIODE,SW5V
	D5304	or 1SS270A-T2	SI DIODE,SW5V
	D5305	11ES2-T2	SI DIODE,RF5V
	D5305	or ERA15-02-T2	SI DIODE,RF5V
	D5305	or 1A3G-T2	SI DIODE,RF5V
	D5307	11ES2-T2	SI DIODE,M12/17V
	D5307	or ERA15-02-T2	SI DIODE,M12/17V

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION		
	D5307	or 1A3G-T2	SI DIODE,M12/17V		
	D5308	MTZJ11B-T2	Z DIODE,SW12V		
	D5308	or RD11ES/B2/-T2	Z DIODE,SW12V		
	D5309	MTZJ27C-T2	Z DIODE,-28V		
	D5309	or RD27ES/B3/-T2	Z DIODE,-28V		
	D5310	1SS133-T2	SI DIODE,-28V		
	D5310	or 1SS270A-T2	SI DIODE,-28V		
	D5316	QUY160-100Y	IM BUS WIRE,M12V		
	D5318	11ES2-T2	SI DIODE,V.DOWN		
	D5318	or ERA15-02-T2	SI DIODE,V.DOWN		
	D5318	or 1A3G-T2	SI DIODE,V.DOWN		
	D5319	11ES2-T2	SI DIODE,V.DOWN		
	D5319	or ERA15-02-T2	SI DIODE,V.DOWN		
	D5319	or 1A3G-T2	SI DIODE,V.DOWN		
	D6002	HZ30-2L-T2	Z.DIODE		
	D6002	or HZ30-2LTD	Z DIODE (M)		
	D7001	RD9.1ES/B2/-T2	Z DIODE		
	D7001	or MTZJ9.1B-T2	Z DIODE		
	D7001	or UZ9.1BSB-T2	Z DIODE		
	D7003	1SS133-T2	SI DIODE		
	D7003	or 1SS270A-T2	SI DIODE		
	D7004	1SS133-T2	SI DIODE		
	D7004	or 1SS270A-T2	SI DIODE		
	D7005	1SS133-T2	SI DIODE		
	D7005	or 1SS270A-T2	SI DIODE		
	D7009	SLR-325VC-T	LED,SAT.TIMER		
	D7009	or LTL-816EE-T	LED,SAT.TIMER		
	R1	NRVA02D-682X	CMF RESISTOR	6.8kΩ,1/10W	D
	R2	NRVA02D-152X	CMF RESISTOR	1.5kΩ,1/10W	D
	R3	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W	J
	R4	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R5	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R6	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W	J
	R7	NRSA02J-681X	MG RESISTOR	680Ω,1/10W	J
	R8	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R9	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R21	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R22	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R23	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W	J
	R25	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R26	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W	J
	R27	NRSA02J-221X	MG RESISTOR	220Ω,1/10W	J
	R28	NRSA02J-221X	MG RESISTOR	220Ω,1/10W	J
	R29	NRSA02J-561X	MG RESISTOR	560Ω,1/10W	J
	R30	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R31	NRSA02J-152X	MG RESISTOR	1.5kΩ,1/10W	J
	R32	NRSA02J-471X	MG RESISTOR	470Ω,1/10W	J
	R33	NRSA02J-153X	MG RESISTOR	15kΩ,1/10W	J
	R36	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W	J
	R37	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R39	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R40	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W	J
	R41	NRSA02J-392X	MG RESISTOR	3.9kΩ,1/10W	J
	R42	NRSA02J-681X	MG RESISTOR	680Ω,1/10W	J
	R46	NRSA02J-331X	MG RESISTOR	330Ω,1/10W	J
	R48	QRE141J-102Y	C RESISTOR	1kΩ,1/4W	J
	R51	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W	J
	R70	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R77	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R88	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R90	NRSA02J-391X	MG RESISTOR	390Ω,1/10W	J

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION		
	R92	NRSA02J-152X	MG RESISTOR	1.5kΩ,1/10W	J
	R93	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W	J
	R104	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W	J
	R111	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W	J
	R113	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	J
	R118	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R201	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R202	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R203	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R204	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R208	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R212	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	J
	R213	QRE141J-0R0Y	C RESISTOR	0Ω,1/4W	J
	R216	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R220	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R224	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	J
	R225	NRSA02J-471X	MG RESISTOR	470Ω,1/10W	J
	R226	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R304	NCB21CK-105X	C CAPACITOR	1μF,16V	K
	R305	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R2001	NRSA02J-681X	MG RESISTOR	680Ω,1/10W	J
	R2002	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W	J
	R2003	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	J
	R2005	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R2006	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W	J
	R2007	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W	J
	R2008	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W	J
	R2009	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W	J
	R2010	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W	J
	R2013	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W	J
	R2014	NRSA02J-224X	MG RESISTOR	220kΩ,1/10W	J
	R2015	NRSA02J-181X	MG RESISTOR	180Ω,1/10W	J
	R2016	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W	J
	R2017	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W	J
	R2018	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	J
	R2019	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	J
	R2053	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	J
	R2054	NRSA02J-153X	MG RESISTOR	15kΩ,1/10W	J
	R2055	NRSA02J-3R3X	MG RESISTOR	3.3Ω,1/10W	J
	R2056	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	J
	R2057	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W	J
	R2058	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W	J
	R2059	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W	J
	R2060	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W	J
	R2061	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W	J
	R2062	NRSA02J-3R3X	MG RESISTOR	3.3Ω,1/10W	J
	R2063	NRSA02J-151X	MG RESISTOR	150Ω,1/10W	J
	R2064	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W	J
	R2065	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W	J
	R2201	QRE141J-121Y	C RESISTOR	120Ω,1/4W	J
	R2202	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W	J
	R2203	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W	J
	R2204	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R2205	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R2206	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	J
	R2208	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	J
	R2209	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	J
	R2210	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R2211	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R2217	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R2218	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W	J

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION		
	R2219	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W	J
	R2222	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W	J
	R2223	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W	J
	R2224	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W	J
	R2226	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W	J
	R2227	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W	J
	R2228	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R2229	NRSA02J-563X	MG RESISTOR	56kΩ,1/10W	J
	R2251	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3011	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3012	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3013	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3014	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3015	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3016	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3017	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3018	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W	J
	R3019	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3020	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3021	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3022	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3025	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3026	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3027	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3029	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3030	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3031	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3032	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3033	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3034	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3035	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3036	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3038	NRSA02J-152X	MG RESISTOR	1.5kΩ,1/10W	J
	R3039	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3040	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	J
	R3041	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3042	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3044	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3046	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3047	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3048	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3049	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3050	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3051	NRSA02J-471X	MG RESISTOR	470Ω,1/10W	J
	R3052	NRSA02J-471X	MG RESISTOR	470Ω,1/10W	J
	R3053	NRSA02J-471X	MG RESISTOR	470Ω,1/10W	J
	R3054	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3055	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3056	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3057	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3058	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3059	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3060	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3061	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3062	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R3063	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3066	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	J
	R3069	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	J
	R3071	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R3072	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3073	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3074	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3075	NRSA02J-471X	MG RESISTOR	470Ω,1/10W	J
	R3076	NRSA02J-471X	MG RESISTOR	470Ω,1/10W	J
	R3077	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3078	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3079	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	J
	R3080	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3081	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3083	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3085	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W	J
	R3086	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W	J
	R3087	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3088	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3089	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3091	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3092	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3093	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3094	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3095	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3096	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3097	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3103	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3104	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3105	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3106	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R3201	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R3202	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	J
	R3203	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R3204	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W	J
	R3205	QRE141J-181Y	C RESISTOR	180Ω,1/4W	J
	R3206	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W	J
	R3207	QRE141J-183Y	C RESISTOR	18kΩ,1/4W	J
	R3208	NRSA02J-181X	MG RESISTOR	180Ω,1/10W	J
	R3209	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W	J
	R3210	NRSA02J-181X	MG RESISTOR	180Ω,1/10W	J
	R3211	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W	J
	R3212	QRE141J-474Y	C RESISTOR	470kΩ,1/4W	J
	R3213	NRSA02J-334X	MG RESISTOR	330kΩ,1/10W	J
	R3214	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R3215	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R3216	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R3217	QRE141J-562Y	C RESISTOR	5.6kΩ,1/4W	J
	R3218	QRE141J-472Y	C RESISTOR	4.7kΩ,1/4W	J
	R3219	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	J
	R3220	NRSA02J-104X	MG RESISTOR	100kΩ,1/10W	J
	R3222	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	J
	R3223	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	J
	R3224	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	J
	R3225	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R3229	NRSA02J-105X	MG RESISTOR	1MΩ,1/10W	J
	R3230	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	J
	R3231	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R3233	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R3234	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R3235	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W	J
	R3236	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W	J
	R3237	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R3238	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R3239	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R3240	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R3241	QRE141J-104Y	C RESISTOR	100kΩ,1/4W	J

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION		
	R3242	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	J
	R4003	NRSA02J-561X	MG RESISTOR	560Ω,1/10W	J
	R4004	NRSA02J-561X	MG RESISTOR	560Ω,1/10W	J
	R4005	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W	J
	R4007	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R4008	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R4009	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R4010	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R4011	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	J
	R4012	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W	J
	R4013	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R4015	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W	J
	R4017	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R4018	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R4019	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R4020	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R4021	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R5101	QRE141J-224Y	C RESISTOR	220kΩ,1/4W	J
	R5102	QRE141J-224Y	C RESISTOR	220kΩ,1/4W	J
	R5103	QRE141J-683Y	C RESISTOR	68kΩ,1/4W	J
	R5104	QRG02GJ-683	OMF RESISTOR	68kΩ,2W	J
	R5106	QRT01DJ-R39X	MF RESISTOR	0.39Ω,1W	J
	R5107	QRE121J-331Y	C RESISTOR	330Ω,1/2W	J
	R5108	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W	J
	R5109	QRE141J-681Y	C RESISTOR	680Ω,1/4W	J
	R5110	NRSA02J-224X	MG RESISTOR	220kΩ,1/10W	J
	R5111	NRSA02J-561X	MG RESISTOR	560Ω,1/10W	J
	R5112	NRSA02J-221X	MG RESISTOR	220Ω,1/10W	J
	R5301	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	J
	R5302	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R5303	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W	J
	R5304	NRSA02J-471X	MG RESISTOR	470Ω,1/10W	J
	R5305	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R5306	NRSA02J-221X	MG RESISTOR	220Ω,1/10W	J
	R5308	NRSA02J-471X	MG RESISTOR	470Ω,1/10W	J
	R5309	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R5310	NRSA02J-221X	MG RESISTOR	220Ω,1/10W	J
	R5311	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R5312	NRVA02D-332X	CMF RESISTOR	3.3kΩ,1/10W	D
	R5313	NRVA02D-332X	CMF RESISTOR	3.3kΩ,1/10W	D
	R5314	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R5316	NRVA02D-103X	CMF RESISTOR	10kΩ,1/10W	D
⚠	R5318	QRZ9005-221X	FUSI RESISTOR	220Ω,1/4W	
	R5326	QRE141J-2R2Y	C RESISTOR	2.2Ω,1/4W	J
	R5332	QRE141J-222Y	C RESISTOR	2.2kΩ,1/4W	J
	R5344	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	J
	R5345	QRE121J-561Y	C RESISTOR	560Ω,1/2W	J
	R6020	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R6021	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R6030	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	R6031	NRSA02J-271X	MG RESISTOR	270Ω,1/10W	J
	R6032	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R6050	QRE141J-101Y	C RESISTOR	100Ω,1/4W	J
	R6051	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	J
	R6052	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	J
	R7160	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	J
	R7161	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	J
	R7162	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	J
	R7163	NRSA02J-750X	MG RESISTOR	75Ω,1/10W	J
	R7001	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R7002	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION		
	R7003	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R7004	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R7005	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	J
	R7006	NRSA02J-471X	MG RESISTOR	470Ω,1/10W	J
	R7007	QRE141J-103Y	C RESISTOR	10kΩ,1/4W	J
	R7008	QRE141J-563Y	C RESISTOR	56kΩ,1/4W	J
	R7009	QRE141J-103Y	C RESISTOR	10kΩ,1/4W	J
	R7010	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R7011	NRSA02J-333X	MG RESISTOR	33kΩ,1/10W	J
	R7012	NRSA02J-333X	MG RESISTOR	33kΩ,1/10W	J
	R7013	NRSA02J-333X	MG RESISTOR	33kΩ,1/10W	J
	R7014	NRSA02J-333X	MG RESISTOR	33kΩ,1/10W	J
	R7015	QRE141J-472Y	C RESISTOR	4.7kΩ,1/4W	J
	R7016	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	J
	R7017	NRSA02J-331X	MG RESISTOR	330Ω,1/10W	J
	R7018	NRSA02J-331X	MG RESISTOR	330Ω,1/10W	J
	B3	NRSA02J-0R0X	MG RESISTOR,SVHS RF EQ	0Ω,1/10W	J
	B8	NRSA02J-0R0X	MG RESISTOR,ET EQ(S)	0Ω,1/10W	J
	B12	QUY160-220Y	IM BUS WIRE,C.SYNC(D)		
	B65	NRSA02J-0R0X	MG RESISTOR,TITLE REC	0Ω,1/10W	J
	B214	QUY160-280Y	IM BUS WIRE,RF VIDEO		
	B3004	QUY160-120Y	IM BUS WIRE,LM/DRUM12V		
	B3079	QUY160-120Y	IM BUS WIRE,EE		
	B3179	NRSA02J-0R0X	MG RESISTOR,VUP	0Ω,1/10W	J
	B5001	QUY160-100Y	IM BUS WIRE,OPT:LF5001		
	B5002	QUY160-100Y	IM BUS WIRE,OPT:LF5001		
	B5301	NRSA02J-0R0X	MG RESISTOR,PS:BT2	0Ω,1/10W	J
	B5302	NRSA02J-0R0X	MG RESISTOR,CH+;SW12V	0Ω,1/10W	J
	B5303	NRSA02J-0R0X	MG RESISTOR,PS:DC	0Ω,1/10W	J
	B5304	NRSA02J-0R0X	MG RESISTOR,PS:-28V	0Ω,1/10W	J
	C1	NCB21HK-103X	C CAPACITOR	0.01μF,50V	K
	C2	NCB21HK-103X	C CAPACITOR	0.01μF,50V	K
	C3	NCB21HK-103X	C CAPACITOR	0.01μF,50V	K
	C4	NCB21HK-103X	C CAPACITOR	0.01μF,50V	K
	C5	QEKJ0JM-476Z	E CAPACITOR	47μF,6.3V	M
	C6	QCBB1HK-103Y	C CAPACITOR	0.01μF,50V	K
	C7	NCB21HK-102X	C CAPACITOR	0.001μF,50V	K
	C8	NCB21EK-104X	C CAPACITOR	0.1μF,25V	K
	C9	QEKJ1HM-225Z	E CAPACITOR	2.2μF,50V	M
	C10	NDC21HG-151X	C CAPACITOR	150pF,50V	G
	C11	NCB21EK-104X	C CAPACITOR	0.1μF,25V	K
	C12	NDC21HJ-8R0X	C CAPACITOR	8pF,50V	J
	C14	NCB21EK-104X	C CAPACITOR	0.1μF,25V	K
	C15	NCB21HK-103X	C CAPACITOR	0.01μF,50V	K
	C16	NCB21EK-104X	C CAPACITOR	0.1μF,25V	K
	C17	QEKJ1HM-335Z	E CAPACITOR	3.3μF,50V	M
	C19	QEKJ1HM-225Z	E CAPACITOR	2.2μF,50V	M
	C20	QEKJ1HM-105Z	E CAPACITOR	1μF,50V	M
	C21	NCB21EK-104X	C CAPACITOR	0.1μF,25V	K
	C22	QEKJ0JM-476Z	E CAPACITOR	47μF,6.3V	M
	C23	NCB21EK-104X	C CAPACITOR	0.1μF,25V	K
	C24	QCBB1HK-104Y	C CAPACITOR	0.1μF,50V	K
	C25	NDC21HJ-4R0X	C CAPACITOR	4pF,50V	J
	C26	NCB21EK-104X	C CAPACITOR	0.1μF,25V	K
	C27	NCB21HK-223X	C CAPACITOR	0.022μF,50V	K
	C28	QEKJ1HM-335Z	E CAPACITOR	3.3μF,50V	M
	C29	NCB21EK-333X	C CAPACITOR	0.033μF,25V	K
	C30	NCB21CK-474X	C CAPACITOR	0.47μF,16V	K
	C31	QEKJ0JM-476Z	E CAPACITOR	47μF,6.3V	M
	C32	QCBB1HK-104Y	C CAPACITOR	0.1μF,50V	K
	C33	QEKJ1HM-225Z	E CAPACITOR	2.2μF,50V	M

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION		
	C34	NCB21EK-104X	C CAPACITOR	0.1µF,25V	K
	C35	NCB21HK-103X	C CAPACITOR	0.01µF,50V	K
	C36	QEKJ1HM-475Z	E CAPACITOR	4.7µF,50V	M
	C37	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	M
	C38	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	M
	C39	NCB21EK-104X	C CAPACITOR	0.1µF,25V	K
	C40	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	M
	C45	QCBB1HK-104Y	C CAPACITOR	0.1µF,50V	K
	C46	NDC21HJ-150X	C CAPACITOR	15pF,50V	J
	C59	NCB21HK-103X	C CAPACITOR	0.01µF,50V	K
	C60	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	M
	C61	NCB21HK-103X	C CAPACITOR	0.01µF,50V	K
	C63	NCB21EK-104X	C CAPACITOR	0.1µF,25V	K
	C64	NDC21HJ-220X	C CAPACITOR	22pF,50V	J
	C65	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	M
	C69	NCB21EK-104X	C CAPACITOR	0.1µF,25V	K
	C70	NCB21EK-104X	C CAPACITOR	0.1µF,25V	K
	C71	NCB21HK-103X	C CAPACITOR	0.01µF,50V	K
	C72	NDC21HJ-470X	C CAPACITOR	47pF,50V	J
	C73	NDC21HJ-120X	C CAPACITOR	12pF,50V	J
	C80	NCB21HK-103X	C CAPACITOR	0.01µF,50V	K
	C106	NCB21HK-821X	C CAPACITOR	820pF,50V	K
	C108	NDC21HJ-680X	C CAPACITOR	68pF,50V	J
	C109	NCB21CK-224X	C CAPACITOR	0.22µF,16V	K
	C110	NDC21HJ-820X	C CAPACITOR	82pF,50V	J
	C112	NDC21HJ-120X	C CAPACITOR	12pF,50V	J
	C114	NDC21HJ-181X	C CAPACITOR	180pF,50V	J
	C139	NDC21HJ-470X	C CAPACITOR	47pF,50V	J
	C143	QCFB1HZ-104Y	C CAPACITOR	0.1µF,50V	Z
	C201	QEKJ0JM-107Z	E CAPACITOR	100µF,6.3V	M
	C204	NCB21HK-103X	C CAPACITOR	0.01µF,50V	K
	C206	NDC21HJ-330X	C CAPACITOR	33pF,50V	J
	C207	NDC21HJ-330X	C CAPACITOR	33pF,50V	J
	C209	NCB21CK-224X	C CAPACITOR	0.22µF,16V	K
	C214	NCB21CK-224X	C CAPACITOR	0.22µF,16V	K
	C217	NDC21HJ-560X	C CAPACITOR	56pF,50V	J
	C218	QERF1HM-105Z	E CAPACITOR	1µF,50V	M
	C222	NCB21CK-105X	C CAPACITOR	1µF,16V	K
	C308	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	C2001	QEKJ1HM-475Z	E CAPACITOR	4.7µF,50V	M
	C2002	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	M
	C2003	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	M
	C2005	QEKJ1HM-475Z	E CAPACITOR	4.7µF,50V	M
	C2006	NCB21EK-123X	C CAPACITOR	0.012µF,25V	K
	C2007	QEKJ1CM-226Z	E CAPACITOR	22µF,16V	M
	C2008	QEKJ1HM-475Z	E CAPACITOR	4.7µF,50V	M
	C2009	NCB21HK-102X	C CAPACITOR	0.001µF,50V	K
	C2010	NCB21HK-152X	C CAPACITOR	0.0015µF,50V	K
	C2011	QEKJ1HM-475Z	E CAPACITOR	4.7µF,50V	M
	C2012	QEKJ1HM-475Z	E CAPACITOR	4.7µF,50V	M
	C2013	NDC21HJ-680X	C CAPACITOR	68pF,50V	J
	C2015	NCB21HK-682X	C CAPACITOR	0.0068µF,50V	K
	C2051	NCB21HK-331X	C CAPACITOR	330pF,50V	K
	C2052	QFLC1HJ-333Z	F CAPACITOR	0.033µF,50V	J
	C2053	NCB21HK-332X	C CAPACITOR	0.0033µF,50V	K
	C2054	NCB21HK-103X	C CAPACITOR	0.01µF,50V	K
	C2055	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	M
	C2061	QFLC1HJ-333Z	F CAPACITOR	0.033µF,50V	J
	C2062	NCB21HK-332X	C CAPACITOR	0.0033µF,50V	K
	C2063	NCB21HK-103X	C CAPACITOR	0.01µF,50V	K
	C2064	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	M

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION		
	C2201	NCB21EK-104X	C CAPACITOR	0.1µF,25V	K
	C2202	NCB21EK-333X	C CAPACITOR	0.033µF,25V	K
	C2203	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	M
	C2204	QDGB1HK-102Y	C CAPACITOR	0.001µF,50V	
	C2205	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	M
	C2206	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	M
	C2207	QEKJ1CM-476Z	E CAPACITOR	47µF,16V	M
	C2208	QEKJ1HM-475Z	E CAPACITOR	4.7µF,50V	M
	C2209	QEKJ1HM-104Z	E CAPACITOR	0.1µF,50V	M
	C2210	QEKJ1HM-104Z	E CAPACITOR	0.1µF,50V	M
	C2211	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	M
	C2212	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	M
	C2213	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	M
	C2214	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	M
	C2215	QEKJ1HM-475Z	E CAPACITOR	4.7µF,50V	M
	C2217	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	M
	C2219	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	M
	C2220	QEKJ1HM-475Z	E CAPACITOR	4.7µF,50V	M
	C2221	NCB21HK-103X	C CAPACITOR	0.01µF,50V	K
	C2222	QEKJ1HM-474Z	E CAPACITOR	0.47µF,50V	M
	C2223	QEKJ1HM-474Z	E CAPACITOR	0.47µF,50V	M
	C2224	NCB21HK-103X	C CAPACITOR	0.01µF,50V	K
	C2225	QEKJ1HM-475Z	E CAPACITOR	4.7µF,50V	M
	C2226	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	M
	C2227	NCB21CK-104X	C CAPACITOR	0.1µF,16V	K
	C2228	NCB21CK-104X	C CAPACITOR	0.1µF,16V	K
	C2251	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	M
	C2252	NCB21HK-103X	C CAPACITOR	0.01µF,50V	K
	C2253	NCB21HK-103X	C CAPACITOR	0.01µF,50V	K
	C2254	NCB21HK-103X	C CAPACITOR	0.01µF,50V	K
	C2255	NDC21HJ-181X	C CAPACITOR	180pF,50V	J
	C3001	NCB21EK-104X	C CAPACITOR	0.1µF,25V	K
	C3003	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	M
	C3008	NCB21HK-102X	C CAPACITOR	0.001µF,50V	K
	C3011	QETL0JM-338	E CAPACITOR	3300µF,6.3V	M
	C3012	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	M
	C3014	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	M
	C3015	NCB21EK-104X	C CAPACITOR	0.1µF,25V	K
	C3016	NCB21EK-104X	C CAPACITOR	0.1µF,25V	K
	C3020	NDC21HJ-101X	C CAPACITOR	100pF,50V	J
	C3021	NDC21HJ-101X	C CAPACITOR	100pF,50V	J
	C3022	NCB21EK-104X	C CAPACITOR	0.1µF,25V	K
	C3024	NDC21HJ-220X	C CAPACITOR	22pF,50V	J
	C3025	QAT3725-300Z	TRIM CAPACITOR		
	C3026	NCB21HK-103X	C CAPACITOR	0.01µF,50V	K
	C3027	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	M
	C3030	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	M
	C3031	NCB21EK-104X	C CAPACITOR	0.1µF,25V	K
	C3032	NCB21EK-104X	C CAPACITOR	0.1µF,25V	K
	C3033	NCB21EK-104X	C CAPACITOR	0.1µF,25V	K
	C3036	NDC21HJ-180X	C CAPACITOR	18pF,50V	J
	C3037	NDC21HJ-120X	C CAPACITOR	12pF,50V	J
	C3040	NCB21HK-103X	C CAPACITOR	0.01µF,50V	K
	C3050	NCB21EK-104X	C CAPACITOR	0.1µF,25V	K
	C4002	NCB21EK-104X	C CAPACITOR	0.1µF,25V	K
	C4003	NCB21HK-102X	C CAPACITOR	0.001µF,50V	K
	C4004	QEKJ1AM-226Z	E CAPACITOR	22µF,10V	M
	C4005	NCB21HK-222X	C CAPACITOR	0.0022µF,50V	K
	C4006	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	M
	C4007	NCB21HK-561X	C CAPACITOR	560pF,50V	K
	C4008	NCB21AK-105X	C CAPACITOR	1µF,10V	K

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION		
	C4009	NCB21HK-563X	C CAPACITOR	0.056µF,50V	K
	C4010	NCB21EK-223X	C CAPACITOR	0.022µF,25V	K
	C4011	NCB21EK-104X	C CAPACITOR	0.1µF,25V	K
	C4012	NCB21AK-105X	C CAPACITOR	1µF,10V	K
	C4013	NCB21HK-563X	C CAPACITOR	0.056µF,50V	K
	C4014	NDC21HJ-101X	C CAPACITOR	100pF,50V	J
	C4015	NCB21HK-102X	C CAPACITOR	0.001µF,50V	K
⚠	C5001	QFZ9073-683	F CAPACITOR	0.068µF	
⚠	C5004	QCZ9071-222	C CAPACITOR	0.0022µF,400V	
	C5006	QEZ0375-686	E CAPACITOR	68µF	
	C5101	QCZ0212-472	C CAPACITOR	0.0047µF,1kV	
	C5102	QCZ0302-330Z	C CAPACITOR	33pF,1kV	
	C5104	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	M
	C5105	QFN31HJ-183Z	F CAPACITOR	0.018µF,50V	J
	C5106	QCBB1HJ-271Y	C CAPACITOR	270pF,50V	J
	C5107	QFV91HJ-104Z	F CAPACITOR	0.1µF,50V	J
	C5201	QEMU0JM-227Z	E CAPACITOR	220µF,6.3V	M
	C5202	QEMT1CM-687	E CAPACITOR	680µF,16V	M
	C5203	QEMT1AM-128	E CAPACITOR	1200µF,10V	M
	C5204	QETN2AM-475Z	E CAPACITOR	4.7µF,100V	M
	C5205	QETN1HM-106Z	E CAPACITOR	10µF,50V	M
	C5206	QETN1EM-476Z	E CAPACITOR	47µF,25V	M
	C5207	QETN1CM-107Z	E CAPACITOR	100µF,16V	M
	C5301	QEKJ1CM-107Z	E CAPACITOR	100µF,16V	M
	C5302	QEKJ1CM-476Z	E CAPACITOR	47µF,16V	M
	C5303	QEKJ1CM-107Z	E CAPACITOR	100µF,16V	M
	C5304	QFLC1HJ-102Z	F CAPACITOR	0.001µF,50V	J
	C5305	QFV91HJ-224Z	F CAPACITOR	0.22µF,50V	J
	C5311	NCB21HK-103X	C CAPACITOR	0.01µF,50V	K
	C5351	QUY153-050Y	IM BUS WIRE		
	C6007	QEMU0JM-227Z	E CAPACITOR	220µF,6.3V	M
	C6012	QEKJ1CM-107Z	E CAPACITOR	100µF,16V	M
	C6013	NCB21HK-103X	C CAPACITOR	0.01µF,50V	K
	C6020	NDC21HJ-680X	C CAPACITOR	68pF,50V	J
	C6021	NDC21HJ-680X	C CAPACITOR	68pF,50V	J
	C6023	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	C6027	NCB21HK-103X	C CAPACITOR	0.01µF,50V	K
	C6032	NCB21HK-472X	C CAPACITOR	0.0047µF,50V	K
	C6037	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	M
	C6052	NDC21HJ-680X	C CAPACITOR	68pF,50V	J
	C6053	NDC21HJ-680X	C CAPACITOR	68pF,50V	J
	C6501	QEKJ0JM-227Z	E CAPACITOR	220µF,6.3V	M
	C7001	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	M
	C7003	QEKJ0JM-227Z	E CAPACITOR	220µF,6.3V	M
	C7005	NDC21HJ-470X	C CAPACITOR	47pF,50V	J
	C7006	NDC21HJ-330X	C CAPACITOR	33pF,50V	J
	C7007	QEKJ1HM-106Z	E CAPACITOR	10µF,50V	M
	C7008	NCB21HK-102X	C CAPACITOR	0.001µF,50V	K
	C7011	QCFB1HZ-104Y	C CAPACITOR	0.1µF,50V	Z
	L1	QQL29BJ-100Z	P COIL	10µH	
	L2	QQL071J-121Y	INDUCTOR	120µH	
	L3	QQL29BJ-100Z	P COIL	10µH	
	L4	QQL29BJ-100Z	P COIL	10µH	
	L5	QQR0521-012Z	NOISE FILTER		
	L11	QQL01BJ-120Z	P COIL	12µH	
	L13	QQL071J-330Y	INDUCTOR	33µH	
	L15	QQL29BJ-100Z	P COIL	10µH	
	L18	QQL071J-220Y	INDUCTOR	22µH	
	L19	QQL071J-120Y	INDUCTOR	12µH	
	L20	QUY153-050Y	IM BUS WIRE		
	L24	QQL071J-270Y	INDUCTOR	27µH	

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION		
	L27	QQL071J-330Y	INDUCTOR	33µH	
	L28	QQL071J-680Y	INDUCTOR	68µH	
	L30	QQL071J-101Y	INDUCTOR	100µH	
	L201	QQL29BK-1R0Z	P COIL	1.0µH	
	L202	QUY153-050Y	IM BUS WIRE		
	L203	QQL29BJ-220Z	P COIL	22µH	
	L206	QQL071J-220Y	INDUCTOR	22µH	
	L2001	QUY153-050Y	IM BUS WIRE		
	L2251	QQL29BJ-100Z	P COIL	10µH	
	L2252	QQL29BJ-151Z	P COIL	150µH	
	L3001	QUY153-050Y	IM BUS WIRE		
	L3011	QUY153-050Y	IM BUS WIRE		
	L3012	QUY153-050Y	IM BUS WIRE		
	L4001	QUY153-050Y	IM BUS WIRE		
	L5201	PELN1184	CHOKE COIL	33µH	
	L5202	PU60944-330K	COIL	33µH	
	L6001	QQL29BK-1R0Z	P COIL	1.0µH	
	L6003	QQL29BJ-470Z	P COIL	47µH	
	X1	QAX0576-001Z	CRYSTAL,PAL		
	X2	QAX0575-001Z	CRYSTAL,NTSC		
	X3001	QAX0445-001	CRYSTAL,ADJ (32K)		
	X3002	QAX0527-001	CRYSTAL,10M		
	S3001	QSW0602-004	PUSH SWITCH,REC SAFEW		
	S3002	QSW0695-001	PUSH SWITCH,S.CASS SW		
	S7001	QSW0456-002Z	TACT SWITCH,STAND-BY		
	S7002	QSW0456-002Z	TACT SWITCH,SVHS ET		
	S7004	QSW0456-002Z	TACT SWITCH,REC		
	S7006	QSW0456-002Z	TACT SWITCH,PAUSE		
	S7008	QSW0456-002Z	TACT SWITCH,STOP/EJECT		
	S7010	QSW0456-002Z	TACT SWITCH,PLAY		
	S7012	QSW0456-002Z	TACT SWITCH,EASY PROG.		
	S7016	QSW0456-002Z	TACT SWITCH,SAT.TIMER		
	K2001	NRSA02J-0R0X	MG RESISTOR,NON_CE	0Ω,1/10W	J
	K2002	NRSA02J-0R0X	MG RESISTOR,NON_CE	0Ω,1/10W	J
	K2003	NRSA02J-0R0X	MG RESISTOR,NON_CE	0Ω,1/10W	J
	K2004	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	K2251	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	K2252	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	K2253	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	K5101	QQR0678-001Z	FERRITE BEADS		
	K5102	QUY153-050Y	IM BUS WIRE		
	K5301	QUY153-050Y	IM BUS WIRE		
	K6080	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	PC3001	GP3S123	IC(PHOTO SENSOR),SP REEL		
	PC3002	GP3S123	IC(PHOTO SENSOR),TU REEL		
⚠	PC5101	PS2561L1-1/L/	IC(PHOTO COUPLER)		
	T2051	PELN0860	OSC TRANS		
	T2052	PELN0861	OSC TRANS		
⚠	T5001	QQS0031-002	SW TRANSF		
	TU6001	QAU0236-001	TUNER,PANA 4		
	DI7001	QLF0032-001	FL TUBE,W/ METER		
	ET1	PQ21623-2-5	EARTH PLATE(RF),TOP_TYPE		
	HD1	LP30188-001A	HOLDER,FOR DI7001		
	HS1	LP40621-001A	HEAT SINK,FOR Q5101		
	OT1	QYTDSF3010Z	TAP SCREW,X2,FOR TERM_B		
	OT2	QYTDST3008Z	TAP SCREW,FOR Q5101		
	OT3	PM30130-001	SPACER,PJVM ONLY		
	OT4	PU59915-107	#500SPACER0.007,FOR WR2		
	SD1	LP30864-001A	SHIELD CASE(PRE),C-TYPE		
	WR2	QUB320-11A4A4	SIN TWIST WIRE,L302-C47		
	FC5001	QNG0006-001Z	FUSE CLIP,FOR F5001		

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	FC5002	QNG0006-001Z	FUSE CLIP,FOR F5001	
	J7105	QNN0383-002	PIN JACK,AU YWR	
⚠	LF5002	QQR0532-001	LINE FILTER	
	CN1	QGF1028C1-11	FPC CONNECTOR,(1-11) 6CH	
	CN501	LPA10090-07A	2D DIGI BOARD ASSY,2D	
	CN901	QGB2024K1-10S	B TO B CONNECTOR,TERMINAL	
	CN902	QGB2024K1-12S	B TO B CONNECTOR,TERMINAL	
	CN903	QGB2024K1-10S	B TO B CONNECTOR,TERMINAL	
	CN904	QGB2024K1-11S	B TO B CONNECTOR,TERMINAL	
	CN905	QGB2024K1-09S	B TO B CONNECTOR,TERMINAL	
	CN2001	QGF1207C1-07	FPC CONNECTOR,A/C HEAD	
	CN2002	QGB2532J1-02	B TO B CONNECTOR,FE HEAD	
	CN3001	QGF1207C1-05	FPC CONNECTOR,DRUM MDA	
	CN3002	QGB2532J1-02	B TO B CONNECTOR,L.MOTOR	
	CN3003	QGB2015M2-08	B TO B CONNECTOR,CAP MOTOR	
	CN3004	QGB2534J2-04	B TO B CONNECTOR,R.ENCODER	
⚠	CN5001	QGA7901C3-02	W TO B CONNECTOR,P.CORD	
	CN6701	LPA10094-07A	DEMOD BOARD ASSY DEMOD	
	CN7001	QGF1207C1-09	FPC CONNECTOR,ADV JOG	
⚠	CP3002	ICP-N25-T	C PROTECTOR,DRUM_COM	
	CP4001	QUY153-050Y	IM BUS WIRE,WITH LM12V	
⚠	CP5303	NMFZ012-1R5X-M	FUSE T1.5A,50V	
⚠	CP5304	NMFZ012-1R0X-M	FUSE T1.0A,50V	
⚠	F5001	QMF51E2-2R0-J1	FUSE T2.0A,AC250V	

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2D DIGITAL BOARD ASSEMBLY <05>

	PW1	LPA10090-07A	2D DIGITAL BOARD ASSY	
	IC1201	JCP8036	IC	
	IC1201	or JCP8057	IC	
⚠	Q1201	2SC1317/RS/-T	TRANSISTOR	
	Q1202	2SA1576A/QR/-X	TRANSISTOR	
	Q1202	or 2PA1576/R/-X	TRANSISTOR	
	Q1203	2SA1576A/QR/-X	TRANSISTOR	
	Q1203	or 2PA1576/R/-X	TRANSISTOR	
	Q1204	2SC4081/QRS/-X	TRANSISTOR	
	Q1204	or 2PC4081/R/-X	TRANSISTOR	
	Q1205	2SC4081/S/-X	TRANSISTOR	
	Q1206	2SC4081/QRS/-X	TRANSISTOR	
	Q1206	or 2PC4081/R/-X	TRANSISTOR	
	D1201	RD4.3ES/B3/-T2	Z DIODE	
	D1202	QUY153-050Y	IM BUS WIRE	
	R1201	NRSA02J-121X	MG RESISTOR 120Ω,1/10W J	
	R1202	NRSA02J-101X	MG RESISTOR 100Ω,1/10W J	
	R1203	NRSA02J-221X	MG RESISTOR 220Ω,1/10W J	
	R1204	NRSA02J-221X	MG RESISTOR 220Ω,1/10W J	
	R1205	NRSA02J-102X	MG RESISTOR 1kΩ,1/10W J	
	R1206	NRSA02J-561X	MG RESISTOR 560Ω,1/10W J	
	R1207	NRSA02J-562X	MG RESISTOR 5.6kΩ,1/10W J	
	R1208	NRSA02J-123X	MG RESISTOR 12kΩ,1/10W J	
	R1209	NRSA02J-180X	MG RESISTOR 18Ω,1/10W J	
	R1210	NRSA02J-393X	MG RESISTOR 39kΩ,1/10W J	
	R1211	NRSA02J-103X	MG RESISTOR 10kΩ,1/10W J	
	R1212	NRSA02J-102X	MG RESISTOR 1kΩ,1/10W J	
	R1213	NRSA02J-331X	MG RESISTOR 330Ω,1/10W J	
	R1214	NRSA02J-101X	MG RESISTOR 100Ω,1/10W J	
	R1215	NRSA02J-102X	MG RESISTOR 1kΩ,1/10W J	
	R1216	NRSA02J-331X	MG RESISTOR 330Ω,1/10W J	
	R1217	NRSA02J-101X	MG RESISTOR 100Ω,1/10W J	

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R1218	NRSA02J-301X	MG RESISTOR 300Ω,1/10W	J
	R1222	NRSA02J-471X	MG RESISTOR 470Ω,1/10W	J
	R1224	NRSA02J-561X	MG RESISTOR 560Ω,1/10W	J
	R1225	NRSA02J-273X	MG RESISTOR 27kΩ,1/10W	J
	R1226	NRSA02J-153X	MG RESISTOR 15kΩ,1/10W	J
	R1227	NRSA02J-561X	MG RESISTOR 560Ω,1/10W	J
	R1228	NRSA02J-391X	MG RESISTOR 390Ω,1/10W	J
	R1230	NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W	J
	R1231	NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W	J
	R1232	NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W	J
	R1233	NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W	J
	VR1201	QVZ3521-103Z	V RESISTOR	
	B1204	NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W	J
	C1201	QEKJ0JM-476Z	E CAPACITOR 47µF,6.3V	M
	C1208	NDC21HJ-101X	C CAPACITOR 100pF,50V	J
	C1210	NDC21HJ-330X	C CAPACITOR 33pF,50V	J
	C1211	QEKJ0JM-476Z	E CAPACITOR 47µF,6.3V	M
	C1212	NCB21HK-102X	C CAPACITOR 0.001µF,50V	K
	C1213	NCF21EZ-104X	C CAPACITOR 0.1µF,25V	Z
	C1214	NCF21CZ-105X	C CAPACITOR 1µF,16V	Z
	C1215	QEKJ0JM-476Z	E CAPACITOR 47µF,6.3V	M
	C1216	NCF21EZ-104X	C CAPACITOR 0.1µF,25V	Z
	C1217	NCF21EZ-104X	C CAPACITOR 0.1µF,25V	Z
	C1218	NCF21EZ-104X	C CAPACITOR 0.1µF,25V	Z
	C1219	NCF21CZ-105X	C CAPACITOR 1µF,16V	Z
	C1220	QEKJ0JM-476Z	E CAPACITOR 47µF,6.3V	M
	C1222	NDC21HJ-820X	C CAPACITOR 82pF,50V	J
	C1223	NDC21HJ-270X	C CAPACITOR 27pF,50V	J
	C1225	NDC21HJ-820X	C CAPACITOR 82pF,50V	J
	C1226	NDC21HJ-270X	C CAPACITOR 27pF,50V	J
	C1227	NCB21EK-104X	C CAPACITOR 0.1µF,25V	K
	C1228	QEKJ1HM-475Z	E CAPACITOR 4.7µF,50V	M
	C1229	NCB21HK-103X	C CAPACITOR 0.01µF,50V	K
	C1230	NCF21EZ-104X	C CAPACITOR 0.1µF,25V	Z
	C1231	NCF21EZ-104X	C CAPACITOR 0.1µF,25V	Z
	C1232	NCF21EZ-104X	C CAPACITOR 0.1µF,25V	Z
	C1233	QDYB1CM-103Y	C CAPACITOR 0.01µF,16V	M
	C1234	NCF21EZ-104X	C CAPACITOR 0.1µF,25V	Z
	C1235	QEKJ0JM-476Z	E CAPACITOR 47µF,6.3V	M
	C1236	NCF21EZ-104X	C CAPACITOR 0.1µF,25V	Z
	C1237	NCF21EZ-104X	C CAPACITOR 0.1µF,25V	Z
	C1238	NDC21HJ-180X	C CAPACITOR 18pF,50V	J
	C1239	NDC21HJ-560X	C CAPACITOR 56pF,50V	J
	C1243	NCB21HK-103X	C CAPACITOR 0.01µF,50V	K
	C1244	QEKJ1HM-475Z	E CAPACITOR 4.7µF,50V	M
	C1245	NDC21HJ-150X	C CAPACITOR 15pF,50V	J
	C1246	QEKJ0JM-476Z	E CAPACITOR 47µF,6.3V	M
	C1248	NCB21HK-103X	C CAPACITOR 0.01µF,50V	K
	L1201	QQL071J-1R0Y	INDUCTOR 1.0µH	
	L1202	QQL29BJ-101Z	P COIL 100µH	
	L1203	QQL29BJ-101Z	P COIL 100µH	
	L1204	QQL29BJ-101Z	P COIL 100µH	
	L1205	QQL071J-6R8Y	INDUCTOR 6.8µH	
	L1206	QQL071J-6R8Y	INDUCTOR 6.8µH	
	L1207	QQL29BJ-101Z	P COIL 100µH	
	L1208	QQL071J-150Y	INDUCTOR 15µH	
	L1209	QUY153-050Y	IM BUS WIRE	
⚠	LC1201	QQL29BJ-101Z	P COIL 100µH	
	SD1	LP30706-001D	S.FRAME(S-VHS)	
	SD2	LP30684-001A	S.CASE(S-VHS)	
	CN1201	QGG2502K1-12	HEADER PIN,(1-12)PIN	

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION		
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			TERMINAL BOARD ASSEMBLY <06>		
	PW1	LPA10138-06A	TERMINAL BOARD ASSY		
	IC501	JCP8018	IC		
	IC501	or JCP8028	IC		
	IC501	or JCP8028-01	IC		
	IC501	or JCP8038	IC		
	IC502	VC2076DP	IC		
	Q903	2SB1218A/QR/-X	TRANSISTOR,S OUT		
	Q903	or 2SA1576A/QR/-X	TRANSISTOR		
	Q903	or 2PA1576/R/-X	TRANSISTOR		
	Q904	2SB1218A/QR/-X	TRANSISTOR,S OUT		
	Q904	or 2SA1576A/QR/-X	TRANSISTOR		
	Q904	or 2PA1576/R/-X	TRANSISTOR		
	Q910	2SB1218A/QR/-X	TRANSISTOR		
	Q910	or 2SA1576A/QR/-X	TRANSISTOR		
	Q910	or 2PA1576/R/-X	TRANSISTOR		
	R503	NRSA02J-221X	MG RESISTOR	220Ω,1/10W	J
	R504	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W	J
	R505	NRSA02J-392X	MG RESISTOR	3.9kΩ,1/10W	J
	R506	NRSA02J-391X	MG RESISTOR	390Ω,1/10W	J
	R507	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W	J
	R508	NRSA02J-151X	MG RESISTOR	150Ω,1/10W	J
	R509	NRSA02J-162X	MG RESISTOR	1.6kΩ,1/10W	J
	R510	NRVA02D-102X	CMF RESISTOR	1kΩ,1/10W	D
	R511	NRVA02D-471X	CMF RESISTOR	470Ω,1/10W	D
	R512	NRVA02D-102X	CMF RESISTOR	1kΩ,1/10W	D
	R513	NRVA02D-152X	CMF RESISTOR	1.5kΩ,1/10W	D
	R514	NRVA02D-332X	CMF RESISTOR	3.3kΩ,1/10W	D
	R515	NRVA02D-332X	CMF RESISTOR	3.3kΩ,1/10W	D
	R516	QUY160-100Y	IM BUS WIRE		
	R517	QUY160-100Y	IM BUS WIRE		
	R525	QRE141J-125Y	C RESISTOR	1.2MΩ,1/4W	J
	R527	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W	J
	R533	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R534	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R535	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R536	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
	R917	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	J
	R918	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	J
	R919	QRE141J-101Y	C RESISTOR	100Ω,1/4W	J
	R920	QRE141J-101Y	C RESISTOR	100Ω,1/4W	J
	R921	QRE121J-331Y	C RESISTOR	330Ω,1/2W	J
	R922	QRE121J-331Y	C RESISTOR	330Ω,1/2W	J
	R923	NRSA02J-750X	MG RESISTOR	75Ω,1/10W	J
	R924	NRSA02J-750X	MG RESISTOR	75Ω,1/10W	J
	R925	NRSA02J-750X	MG RESISTOR	75Ω,1/10W	J
	R926	NRSA02J-750X	MG RESISTOR	75Ω,1/10W	J
	R927	NRSA02J-750X	MG RESISTOR	75Ω,1/10W	J
	R928	QRE141J-750Y	C RESISTOR	75Ω,1/4W	J
	R929	NRSA02J-820X	MG RESISTOR	82Ω,1/10W	J
	R930	NRSA02J-750X	MG RESISTOR	75Ω,1/10W	J
	R949	QRE121J-331Y	C RESISTOR	330Ω,1/2W	J
	R952	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W	J
	R961	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	J
	R962	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	J
	R963	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	J
	R965	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	J
⚠	R966	QRE141J-102Y	C RESISTOR	1kΩ,1/4W	J

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION		
	B904	QUY160-100Y	IM BUS WIRE,RCA V OUT		
	C501	QEKJ1HM-225Z	E CAPACITOR	2.2μF,50V	M
	C502	QEKJ1HM-475Z	E CAPACITOR	4.7μF,50V	M
	C503	QEKJ1HM-225Z	E CAPACITOR	2.2μF,50V	M
	C504	NCB21EK-104X	C CAPACITOR	0.1μF,25V	K
	C505	QEKJ1HM-475Z	E CAPACITOR	4.7μF,50V	M
	C506	NCB21HK-103X	C CAPACITOR	0.01μF,50V	K
	C507	QEKJ0JM-476Z	E CAPACITOR	47μF,6.3V	M
	C508	QEKJ1HM-474Z	E CAPACITOR	0.47μF,50V	M
	C509	QEKJ1CM-106Z	E CAPACITOR	10μF,16V	M
	C510	QEKJ0JM-476Z	E CAPACITOR	47μF,6.3V	M
	C511	NCB21HK-103X	C CAPACITOR	0.01μF,50V	K
	C512	NCB21HK-103X	C CAPACITOR	0.01μF,50V	K
	C513	QEKJ1HM-475Z	E CAPACITOR	4.7μF,50V	M
	C514	NCB21HK-103X	C CAPACITOR	0.01μF,50V	K
	C515	NCB21HK-103X	C CAPACITOR	0.01μF,50V	K
	C516	NCB21HK-103X	C CAPACITOR	0.01μF,50V	K
	C518	NCB21EK-104X	C CAPACITOR	0.1μF,25V	K
	C519	QEKJ1HM-225Z	E CAPACITOR	2.2μF,50V	M
	C520	QEKJ1HM-475Z	E CAPACITOR	4.7μF,50V	M
	C521	QEKJ1HM-475Z	E CAPACITOR	4.7μF,50V	M
	C522	QEKJ1HM-225Z	E CAPACITOR	2.2μF,50V	M
	C523	QEKJ1HM-225Z	E CAPACITOR	2.2μF,50V	M
	C524	NDC21HG-301X	C CAPACITOR	300pF,50V	G
	C525	NDC21HG-301X	C CAPACITOR	300pF,50V	G
	C526	NDC21HJ-101X	C CAPACITOR	100pF,50V	J
	C527	NDC21HJ-181X	C CAPACITOR	180pF,50V	J
	C528	NDC21HG-271X	C CAPACITOR	270pF,50V	G
	C529	NDC21HG-820X	C CAPACITOR	82pF,50V	G
	C530	NDC21HG-221X	C CAPACITOR	220pF,50V	G
	C531	NDC21HG-301X	C CAPACITOR	300pF,50V	G
	C532	NDC21HG-301X	C CAPACITOR	300pF,50V	G
	C533	NCB21HK-103X	C CAPACITOR	0.01μF,50V	K
	C534	QEKJ0JM-476Z	E CAPACITOR	47μF,6.3V	M
	C535	NCB21HK-103X	C CAPACITOR	0.01μF,50V	K
	C554	QEKJ1HM-105Z	E CAPACITOR	1μF,50V	M
	C556	QCBB1HK-103Y	C CAPACITOR	0.01μF,50V	K
	C557	QEKJ1HM-105Z	E CAPACITOR	1μF,50V	M
	C559	NCB21HK-103X	C CAPACITOR	0.01μF,50V	K
	C560	QEKJ1HM-105Z	E CAPACITOR	1μF,50V	M
	C561	QEKJ1HM-105Z	E CAPACITOR	1μF,50V	M
	C563	NCB21HK-103X	C CAPACITOR	0.01μF,50V	K
	C910	NCB21HK-102X	C CAPACITOR	0.001μF,50V	K
	C912	NCB21HK-102X	C CAPACITOR	0.001μF,50V	K
	C913	NCB21HK-103X	C CAPACITOR	0.01μF,50V	K
	C914	NCB21HK-103X	C CAPACITOR	0.01μF,50V	K
	C928	NCB21HK-103X	C CAPACITOR	0.01μF,50V	K
	C929	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W	J
	C931	QEKJ0JM-227Z	E CAPACITOR	220μF,6.3V	M
	C941	QEKJ0JM-227Z	E CAPACITOR	220μF,6.3V	M
	C942	QEKJ1CM-476Z	E CAPACITOR	47μF,16V	M
	C948	QEKJ1CM-476Z	E CAPACITOR	47μF,16V	M
	C949	QEKJ0JM-227Z	E CAPACITOR	220μF,6.3V	M
	C950	QEKJ0JM-227Z	E CAPACITOR	220μF,6.3V	M
	C951	QEKC1CM-476Z	E CAPACITOR	47μF,16V	M
	L501	QQL29BJ-100Z	P COIL	10μH	
	L503	QQL29BJ-100Z	P COIL	10μH	
	L504	QQL29BJ-100Z	P COIL	10μH	
	L903	QUY153-050Y	IM BUS WIRE		
	L904	QUY153-050Y	IM BUS WIRE		
	L906	QUY153-050Y	IM BUS WIRE		

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION		
	L907	QUY153-050Y	IM BUS WIRE		
	L912	QUY153-050Y	IM BUS WIRE		
	L921	QUY153-050Y	IM BUS WIRE		
	L922	QUY153-050Y	IM BUS WIRE		
	ET1	LP30918-001A	EARTH PLATE,FOR EMC		
	ET2	LP30915-001A	EARTH PLATE		
⚠	TB1	LP21028-003A	TERMINAL BOARD		
	OT1	QYTDSF3008Z	TAP SCREW,X2		
	BT901	QNZ0032-001	BATTERY HOLDER,BT BUCK UP		
	J903	QND0084-001	S JACK,S IN		
	J904	QND0084-001	S JACK,S OUT		
	J911	QNN0418-004	PIN JACK,V.IN		
	J912	QNN0418-003	PIN JACK,A.IN(L)		
	J913	QNN0419-002	PIN JACK,A.IN(R)		
	J914	QNN0418-004	PIN JACK,V.OUT		
	J915	QNN0418-003	PIN JACK,A.OUT(L)		
	J916	QNN0418-002	PIN JACK,A.OUT(R)		
	J922	PU60659	MINI JACK,PAUSE/RAE		
	CN911	QGB2024J1-10S	B TO B CONNECTOR		
	CN912	QGB2024J1-12S	B TO B CONNECTOR		
	CN913	QGB2024J1-10S	B TO B CONNECTOR		
	CN914	QGB2024J1-11S	B TO B CONNECTOR		
	CN915	QGB2024J1-09S	B TO B CONNECTOR		
	CN916	QGF1208F1-04	FPC CONNECTOR,FRONT S IN		

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A/C HEAD BOARD ASSEMBLY <12>

PW1	LPA10010-01A	A/C HEAD BOARD ASSY		
CN1	QGF1208F1-07	FPC CONNECTOR		

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DEMOD BOARD ASSEMBLY <14>

PW1	LPA10094-07A	DEMOD BOARD ASSY		
IC6701	MSP3417D-X	IC		
IC6701	or MSP3417DG3-X	IC		
IC6701	or MSP3417G-X	IC		
Q6701	2SC3936/BC/-X	TRANSISTOR		
D6701	1SS133-T2	SI DIODE		
D6701	or 1N4148M-T2	DIODE		
R6701	NRSA02J-392X	MG RESISTOR	3.9kΩ,1/10W	J
R6702	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W	J
R6703	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	J
R6704	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
R6705	NRSA02J-271X	MG RESISTOR	270Ω,1/10W	J
R6707	NQR0200-003X	FERRITE BEADS		
R6708	NQR0200-003X	FERRITE BEADS		
R6709	NQR0200-003X	FERRITE BEADS		
R6710	NQR0200-003X	FERRITE BEADS		
R6711	NRSA02J-104X	MG RESISTOR	100kΩ,1/10W	J
R6712	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
R6714	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
R6716	NQR0200-003X	FERRITE BEADS		
R6719	QRE141J-103Y	C RESISTOR	10kΩ,1/4W	J
R6720	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W	J
R6721	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W	J
C6701	NCB21HK-103X	C CAPACITOR	0.01µF,50V	K

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION		
	C6703	NDC21HJ-221X	C CAPACITOR	220pF,50V	J
	C6704	NCB21HK-103X	C CAPACITOR	0.01µF,50V	K
	C6707	NDC21HJ-470X	C CAPACITOR	47pF,50V	J
	C6708	NDC21HJ-7R0X	C CAPACITOR	7pF,50V	J
	C6709	NDC21HJ-3R0X	C CAPACITOR	3pF,50V	J
	C6713	NCF21CZ-224X	C CAPACITOR	0.22µF,16V	Z
	C6714	NCB21HK-222X	C CAPACITOR	0.0022µF,50V	K
	C6715	QEKJ1HM-225Z	E CAPACITOR	2.2µF,50V	M
	C6716	NCB21HK-222X	C CAPACITOR	0.0022µF,50V	K
	C6717	QEKJ1HM-225Z	E CAPACITOR	2.2µF,50V	M
	C6719	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	M
	C6720	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	M
	C6721	NCB21HK-103X	C CAPACITOR	0.01µF,50V	K
	C6723	NCB21HK-103X	C CAPACITOR	0.01µF,50V	K
	L6701	QUY153-050Y	IM BUS WIRE		
	L6702	QQL231J-3R3Y	INDUCTOR	3.3µH	
	X6701	QAX0443-001	CRYSTAL		
	K6701	NRSA02J-330X	MG RESISTOR	33Ω,1/10W	J
	K6702	NQR0200-003X	FERRITE BEADS		
	K6703	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	K6704	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	J
	K6705	NRSA02J-100X	MG RESISTOR	10Ω,1/10W	J
	K6706	NRSA02J-470X	MG RESISTOR	47Ω,1/10W	J
	BK1	LP40425-001A	BRACKET(BOARD)		
	CN6701	QGG2502K1-10	HEADER PIN		

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S.JACK BOARD ASSEMBLY <36>

PW1	LPA20009-01B	S JACK BOARD ASSY		
J7102	QND0085-001	S JACK		
CN7108	QGF1209F1-04	FPC CONNECTOR		

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ADV.JOG BOARD ASSEMBLY <38>

PW1	LPA20013-03B	ADV.JOG BOARD ASSY		
UN7001	QSW0905-001	ROTARY ENCODER,400HA		
CN7003	QGF1209F1-09	FPC CONNECTOR,400HA		

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LOADING MOTOR BOARD ASSEMBLY <55>

PW1	LP10122-01A2	LOADING MOTOR BOARD ASSY		
CN1	QGB2533K1-02	B TO B CONNECTOR		